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[General publications]
[G-22]

a threshold wilderness concept for frontenac provincial park

prepared for the ontario ministry of natural resources
parks division

by hough, stansbury and associates limited



Ontario



FRONTENAC PROVINCIAL PARK MASTER PLAN

- ERRATA -

Page 8, paragraph 3, line 2: - spelling "sediments".

Following page 22, Figure 18: - Source: - spelling "Kemptville".

Following page 22, Figure 19:

Bon Echo - Location

- spelling "Kaladar"
- spelling "Cloyne"

- Other Activities - 50 miles snowmobiling trails

Outlet Beach

- Other Activities - "snowmobiling on existing roads".

Presqu'ile

- Other Activities - "15 m. snowmobiling trails".

Charleston Lake

- Campsites - "never full - under development"

- Historical Interest

add "Indian Rock Paintings"

- Other Activities

- "snowmobiling on existing roads"

Ferris

- Location

- "on County Road 31 immediately south of Campbellford".

- Description

- "approximately 500 acres"

- "New Park - under development"

- Other Activities

- "snowmobiling on existing roads".

Sharbot Lake

- Other Activities - "snowmobiling on existing roads".

Silver Lake

- Other Activities - "snowmobiling on existing roads".

Rideau River

- Other Activities - "snowmobiling on existing roads".

Fitzroy

- Other Activities - "snowmobiling on existing roads".

Page 29, paragraph 2.c): change - "transient - use"


Page 34, paragraph 1, line 18: spelling - "rescue".

Page 35, paragraph 3, line 12: spelling - "scaling".

Page 40, section - A.1., paragraph 1, line 11: spelling - "approaching".

Page 40, section - A.1., paragraph 3, line 2: change - (see Figure 25)

Following page 54, Figure 41: Add - development zone (parking area) at west end of Big Salmon Lake.



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Hough, Stansbury + Associates Limited

Land Resource Planning
Environmental Research
Site Planning + Design

July 4, 1974.

Mr. T.W. Hueston,
Regional Director,
Eastern Region,
Ministry of Natural Resources,
Kemptville, Ontario.

Dear Mr. Hueston,

We are pleased to submit this Master Plan Report for Frontenac Provincial Park, a very significant addition to the Eastern Region Provincial Park System. The studies contained in this Report clearly reveal this Park's capability to provide to the people of South-eastern Ontario vital opportunities for dispersed recreation in an area of high quality natural environment.

In addition to the resource values of the Park, we would like to emphasize both our personal and professional satisfaction in working with a very fine group of public participants and government staff. The active involvement of the many groups and individuals who contributed their knowledge and opinions concerning the Park not only made our work easier, but more importantly, made this a better Master Plan Report.

We are aware of your hesitation about our naming and thanking all of the Ministry staff for fulfilling their roles as public servants and while we omit their names, we want to express to the staff in Kemptville, Napanee, Kingston and Toronto our gratitude for their knowledge and enthusiastic support throughout the planning effort.

In closing, we would like to support your intention to make copies of this report available to the public. The repeated request which we have had for inventory maps, and the submission of many letters and briefs indicate the great interest in this Park, and public distribution of the report will provide a very worthwhile culmination to the collective efforts of all involved in achieving this Master Plan.

Very truly yours,

James C. Stansbury
James C. Stansbury,
Principal Landscape Architect.

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INTRODUCTION

A. Establishment of the Park

Frontenac Provincial Park encompasses approximately 12,000 acres of Precambrian Shield terrain in Eastern Ontario, approximately 150 miles east of Toronto, 75 miles south of Ottawa, and 20 miles north of Kingston (Fig. 1). The Park comes under the administration of the Division of Parks of the Ontario Ministry of Natural Resources through the Eastern Region headquarters in Kemptville, and the Napanee District office in Napanee, Ontario.

The Park has a special location in relation to the Rideau Canal, an historic and recreational waterway extending from Kingston to Ottawa near the eastern limit of the Park. Another linear recreation feature, the Rideau Trail, also connects Kingston and Ottawa, utilizing the Park for a 20 mile portion of the route. The relationship of the Park to these features is shown in Figure 2.

The Frontenac Park Reserve was set aside in the mid 1960's as a result of three basic factors:

1. The need for a large block of park land in Eastern Ontario, to meet a growing demand for the more extensive forms of outdoor recreation such as canoeing, hiking and camping.
2. The rapid increase in private shoreline development which was threatening traditional uses of the Frontenac Axis lake country, and the opportunity which existed at that time to secure this block of as yet relatively undeveloped land.
3. The active encouragement of the Kingston and District Rod and Gun Club and the Ontario Federation of Anglers and Hunters.

Occupying a location west of, but adjacent to

the Rideau System it was accessible to that system via a short overland route at Bedford Mills, between Loon Lake and Devil Lake, though this opportunity has not been heavily utilized. Conversely, it lies east and south of the Holleford, Desert, Canoe and Wolfe Lake line, which tended to be the limit of cottage development based upon the Harrowsmith-Westport Road at that time.

The Park, however, is immediately surrounded on the east and north by Buck and Devil Lakes which were being opened up for cottaging in the early 1960's. Some development had likewise occurred on Kingsford and Birch Lakes, but within the perimeter of that line, the development pressures were slowed by lack of easy access. The zone which became the Park was then one of the few areas in the Frontenac Axis which remained largely unaffected by surrounding recreational growth.

The Rideau Lakes system had over the years become very much a summering area for the residents of New York State, but with the completion of Highway 401, the ever-expanding population of Metropolitan Toronto quickly realized that a trip to Eastern Ontario was often less time-consuming and frustrating than that north of Toronto to the Muskoka-Haliburton area. At the same time that the latter trip was becoming increasingly tedious, the scarcity of new cottage land and its resulting premium cost was accelerating interest in the cottage country in the area east of the Kawarthas.

Considering all of these factors, it was highly significant that the Frontenac Reserve was secured at the time when it was.

In addition to cottaging pressures, the rising demand for Park land had focused attention on the shortages in Eastern Ontario of those types of landscape,

Key



Frontenac Provincial Park

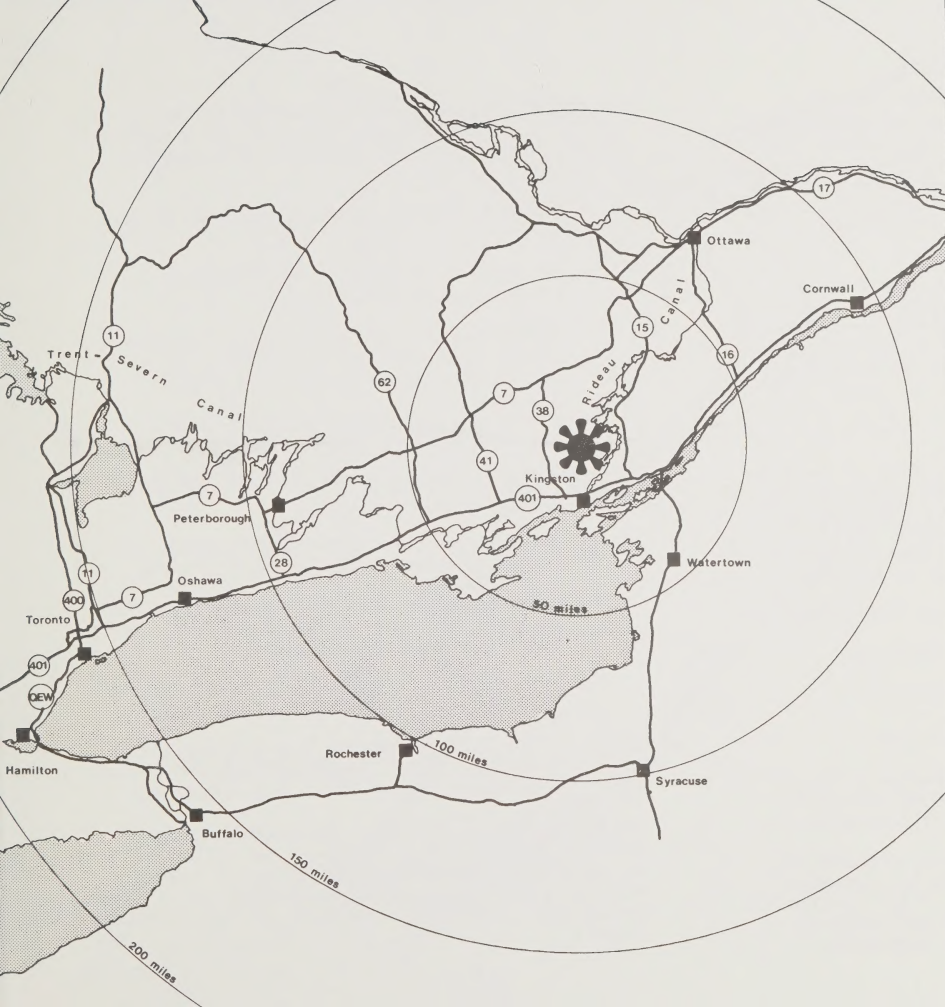


Fig.1

Scale in miles



Orientation

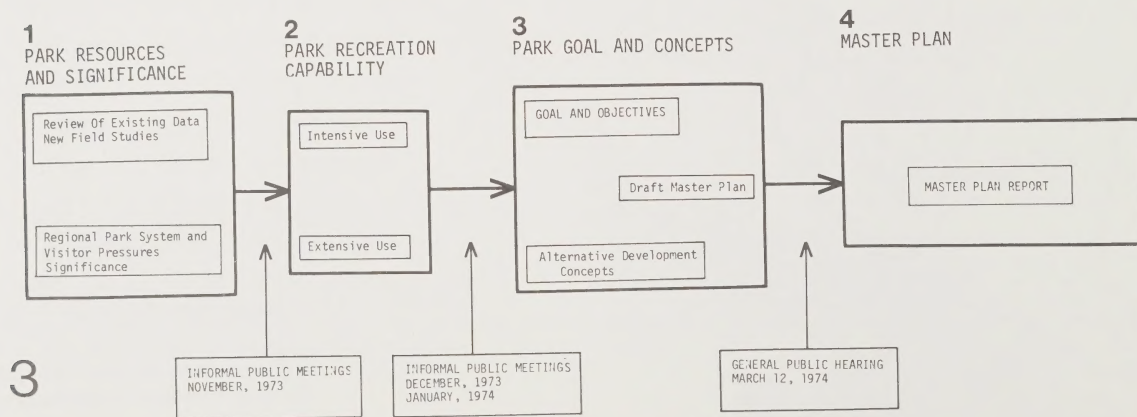
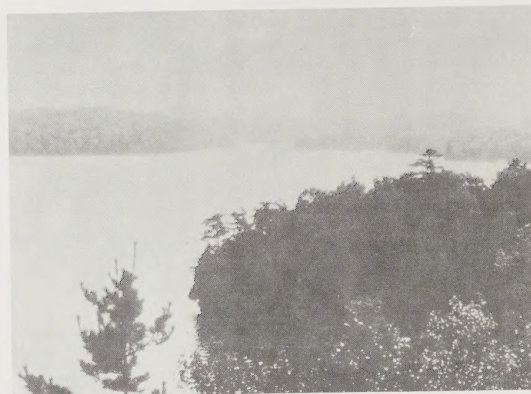


Ontario Ministry of Natural Resources
Hough, Stansbury + Associates Limited

Certainly, we have not been able to accept all public points of view in the development of the Master Plan. Nor have we attempted to place ourselves in the role of detached arbitrators of recreation/conservation issues and disputes. Our responsibilities are clearly directed toward preparing a plan which 1) recognizes the inherent capabilities and sensitivities of Frontenac Provincial Park; 2) contributes in the best possible way to the provision of an outstanding, comprehensive outdoor recreation system; and 3) reflects the desire of the people for a compatible array of park uses.

It has been said that "the earth and its resources belong of right to its people,"* and this Master Plan, covering 12,000 acres in Frontenac County attempts to insure that neither the right nor the resources are abused.

* Gifford Pinchot



PHASE 1: PARK RESOURCES + SIGNIFICANCE

A. Park Resources

A well-balanced understanding of both park resources and significance is fundamental to the preparation of a Master Plan. This phase therefore included simultaneous studies of both aspects, and began with a review of existing information and reports in progress.

The Ministry of Natural Resources provided us with a background of reports and information, the most useful of which covered the following subjects:

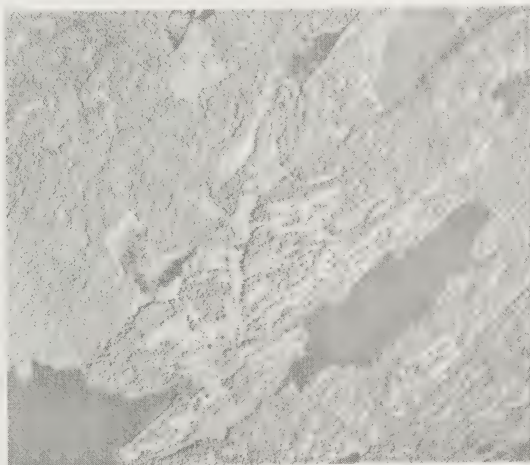
1. Aerial Photography - 1971 black and white mid-summer, 1" = 1320'.
2. Topographic mapping of park, 20' contours, scale 1" = 600'.
3. Base map 4" = 1 mile.
4. Written Historical Report - Miss G. Lucas, 1972.
5. A Report on Archaeological Survey in Tweed District 1972 - Gary Forma.
6. A Story On Architecture In Frontenac Park, Ministry of Natural Resources, 1973.
7. Biology of Frontenac Park - Preliminary Report, I. Macdonald, 1973.
8. Lake Survey Summaries and topographic maps.
9. Records of water level fluctuations at Kingsford Dam (1968 - 1969)

Our review of existing information, and reports already under preparation, revealed the need for further field studies and analysis concerning the following Park resources:

1. Bedrock Geology
2. Drainage
3. Soils
4. Lakeshore Conditions
5. Historical Mining Features
6. Fisheries

With the exception of fisheries, the necessary information was obtained through aerial photographic interpretation by Gartner Lee Associates Limited, and ground control field investigations carried out jointly by Gartner Lee Associates Limited, and Hough, Stansbury and Associates Limited.

The following text and maps summarize the overall inventory of information obtained from all sources during the Fall and Winter of 1973.



1. Existing Land Use (Figure 4)

Frontenac Provincial Park is situated in an area where recreation, and to a lesser extent, agriculture, are the dominant land uses. The Park boundary adjoins a number of lakes, all of which provide cottage development, varying from 8 cottages on Birch and Big Clear Lakes to 230 cottages on Buck Lake. The only developed recreation within the Park occurs at the Otter Lake Picnic Area, which provides picnic sites, a boat ramp, and a staff office. A lodge facility on Big Salmon Lake is used by Park Staff as a base for field work and consists of a main building with outlying sleeping cabins. Inholdings occur in the Park. Existing roads are all unimproved, and provide vehicular access from County Road 5A to the Lodge, and from Perth Road to Black Lake. The remaining dirt roads shown on the map are negotiable only by truck or 4 wheel drive vehicles. The Rideau Trail passes through the southern portion of the Park, and more informal hiking and snowmobile routes occur throughout the Park.

In general, the Park is characterized by difficult access and minor recreational development.

Source: Ministry of Natural Resources records and sketch maps.





Key

- Park boundary
- Roads
- Trails
- Portages
- Snowmobiles (also use lakes, roads, and portages)
- Otter Lake Picnic Area
- Private Inholdings
- Cottages
- County Road

Fig. 4

Scale in miles



Orientation



2. Physiography (Figure 5)

Area #1

General: A linear N.E. - S.W. texture to the terrain is evident due to the plastic flow of interbedded marble and paragneiss rocks. These gently folded linear ridges have slightly deeper soils than elsewhere in the Park (regionally), and support predominately hardwood trees. Metamorphism has intruded mineralization into the host rocks.

Five beach zones are present, and the peripheral lakes are flowing. Viewpoints are not predominant.

Area #2

General: The terrain here becomes more massive although some structure and lineation is evident, especially on a micro-scale. The rocks are predominately granite gneisses and these outcrops afford excellent vantage points for viewing the terrain. Soils are shallow.

The valley north of Little Salmon Lake follows a fault and provides a natural environment of a wetland valley bottom and steep-sided valley walls.

Area #3

General: This zone is underlain by intrusive diorite rocks, which have no lineation - Soil is sparse and there are no deposits of deeper soils - Wetlands are very common, and the overall drainage may be classed as stagnant.

Some rugged rock outcrops do provide viewpoints, especially around the periphery of the zone.

Area #4

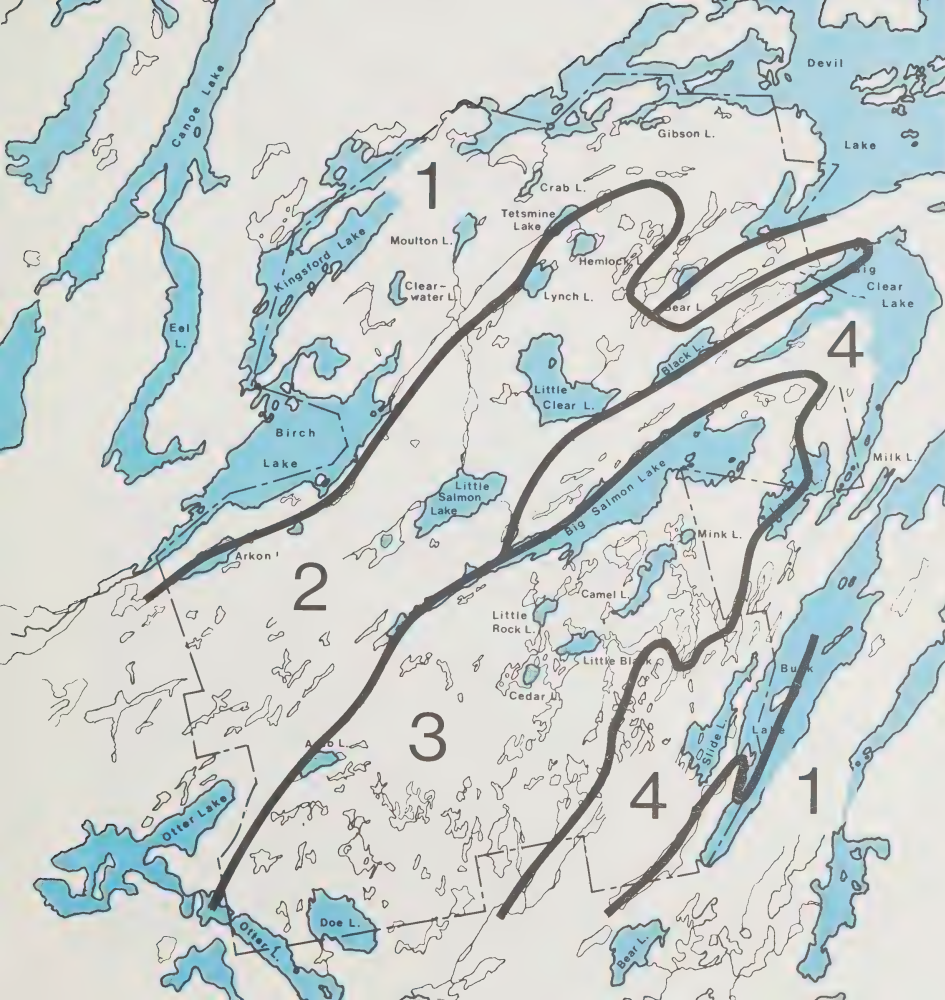
General: This is the most rugged terrain in the Park, and is characterized by linear and parallel rock ridges which give a foliated texture to the landscape.

Soil cover is usually sparse, and wetlands exist between the rock outcrops, causing stagnant drainage.

Bedrock consists of mixed paragneiss and granite gneiss and rock strikes and dips are well shown.

Source: Gartner Lee Associates Limited Report.





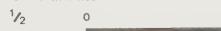
Key

--- Park boundary

3 Physiographic Areas

Fig. 5

Scale in miles



Orientation



Ontario Ministry of Natural Resources
Hough, Stansbury + Associates Limited

3. Drainage (Figure 6)

Many of the lakes within the Park are generally low-flow to stagnant bodies of water. Many are in a state of natural eutrophication with various stages of this process being well illustrated in the Park. Hemlock Lake has an ingrowing of organic debris around its perimeter, showing an early stage of eutrophication. Many of the swamps south of Big Salmon Lake show the completion of the cycle into areas of organic terrain. Beaver damming has flooded many hollows, killing trees and producing debris-filled ponds.

On a perennial basis, there is a low waterflow from the Little Clear Lake area through Black, Big Clear, Labelle, Slide and Buck Lakes in that order. A more intermittent system flows from Big Salmon Lake through Little Salmon, Birch, Kingsford and Devil Lakes respectively. Birch, Kingsford and Devil Lakes are controlled by a dam between Kingsford and Devil Lakes, with average summer fluctuations of $1\frac{1}{2}$ to 2 feet.

Little Salmon, Big Salmon, and Little Clear, can be classed as headwater lakes, although, the other lakes could be grouped as the same, due to the low flow and proximity to these head water lakes.

Most streams are intermittent, and those that are perennial are low flow, except during the Spring.

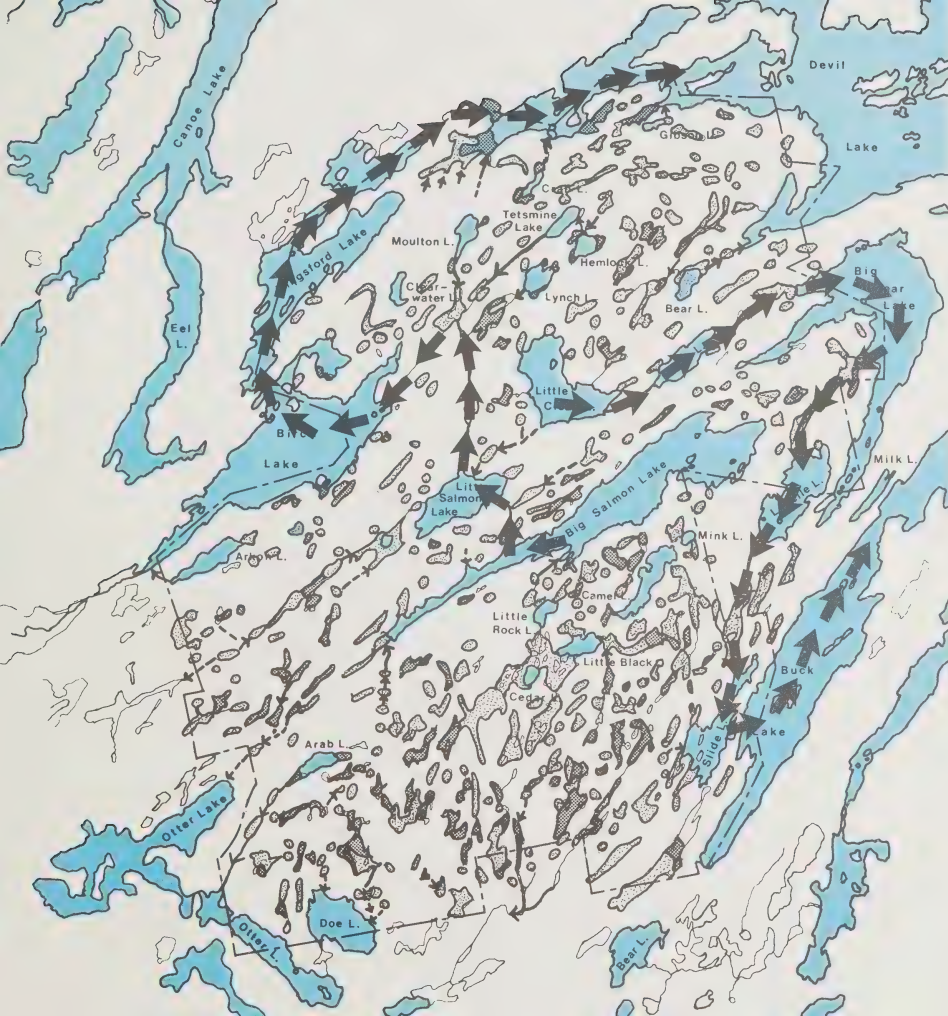
The largest concentration of wetlands is south of Big Salmon Lake although wetlands are prevalent throughout the entire Park. Wetlands have been classified into "Drowned Land", which are areas in which water is predominant, due either to flooding or natural ingrowing of organic debris, and "Organic Terrain", where

there is little or no open water, but mainly peat and organic material.

Many of the drainage courses follow lineaments within the rock which may trace ancient fractures and faults.

Source: Gartner Lee Associates Limited Report.





Key


- Park boundary
-  Drowned land
-  Organic Terrain
- - - -> Intermittent streams
- > Streams
-  Park drainage

Fig. 6

Scale in miles



Orientation



4. Bedrock Geology (Figure 7)

This map is derived from an interpretation of the airphotos, ground truth checking and existing regional bedrock geology maps.

The terrain is controlled by the bedrock structure and topography, and this map attempts to relate these features for park planning purposes.

Folded Marble Terrain

Rocks are a combination of crystallized limestone (marble) and paragneisses (metamorphosed sediments). These rocks generally flow in response to stress and this can be seen in the linear folded structure of the zone. The lack of regional lineaments (fractures) is due to the mobility of these rocks.

This mobility results in a series of gently folded linear ridges (from a regional viewpoint) which tend to subdue the terrain, as compared with the remainder of the Park.

An anticlinal axis is noted plunging into Devil Lake.

In general, the terrain has slightly more soil cover, since these rocks are less resistant to weathering forces, and this and the limey soils partly account for the predominance of hardwoods.

Massive Gneiss Terrain

These rocks lack the concentrations of marble and consist of granite gneisses mixed with some paragneisses.

The terrain is more massive, with less evidence of structure, and foliation. Since the rocks are somewhat more brittle, fractures and faults are more prevalent.

This produces a terrain with many viewpoints and large, spectacular bedrock highs. This is enhanced by the fault or fracture traces, which produce linear valleys and gorges.

Soil cover is not quite as continuous as to the north, and there is a lack of texture to the terrain. Deeper soils are confined to bedrock depressions.

Dissected Pluton Terrain

The main rock type here is a diorite, which is a coarse-grained intrusive rock, composed mainly of feldspar. This mass of rock was intruded into the crust of the earth, and undoubtedly was responsible for much of the metamorphism and folding seen in the surrounding rocks.

Soil cover is almost non-existent, and these brittle rocks have been well-fractured and possibly faulted. This dissection has resulted in a great number of low, poorly-drained zones, likely scoured by glaciation and now hosting lakes and swamps in various stages of natural eutrophication.

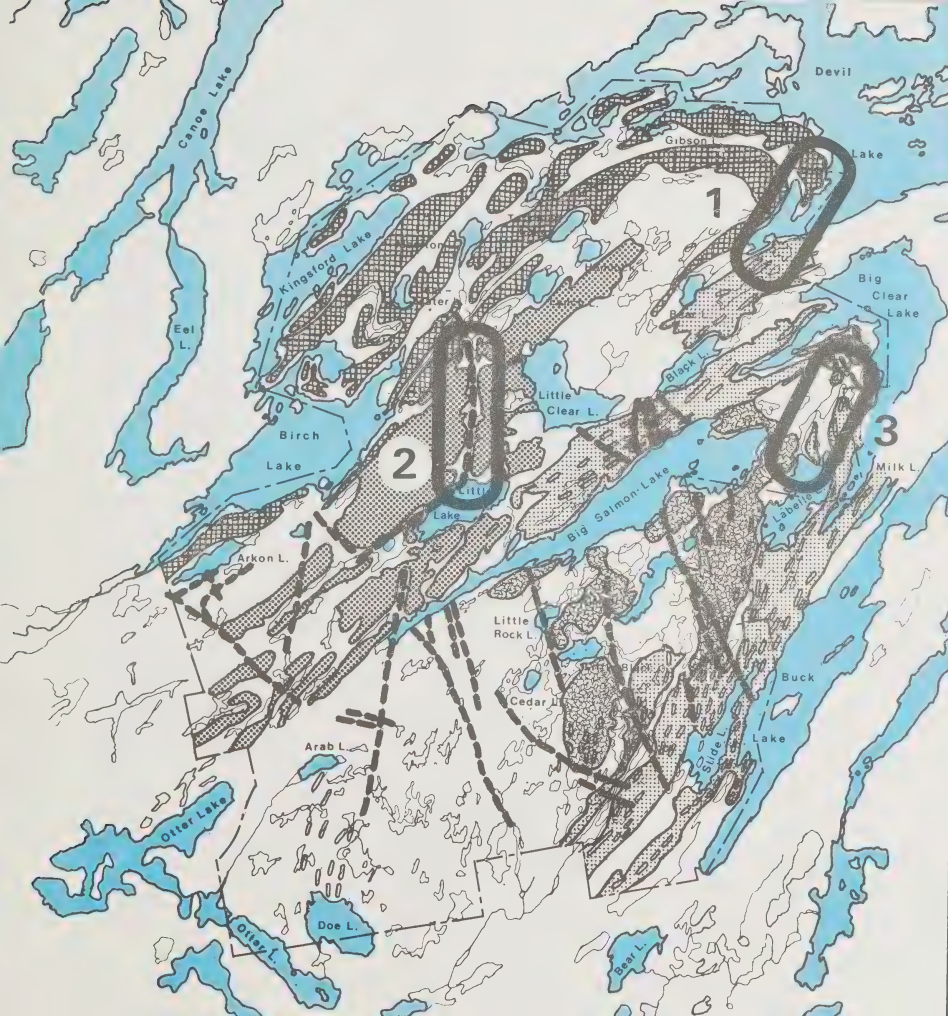
Rugged Linear Ridge Terrain

This terrain encircles the pluton and is characterized by a series of sub-parallel, linear foliated ridges of outcrop which give a very rugged appearance to the land.

The rock types are generally paragneisses and granite gneisses.

Soil cover is very slight to non-existent.

Swamps fill the lows between these ridges, and good examples of the "strike and dip" of the rock structure can be seen and measured.



Key

- Park boundary
- Folded Marble Terrain
- Massive Gneiss
- Dissected Pluton
- Rugged Linear Ridge
- Foliated Ridges
- Lineaments
- 1** Hardwood Bay
- 2** Moulton Gorge
- 3** Labelle Gorge

Fig. 7

Scale in miles



Orientation



Faults and fractures are fairly common in these brittle rocks.

Structural Features

The lineaments shown are likely caused by fracturing of the rock and/or faulting, and appear to be associated with the plutonic intrusion.

Two anticlines are evident, at the noses of two folds, and a syncline between them. This is evidence of the intense metamorphism which affected this area in the geologic past.

The most interesting geological area occurs at Hardwood Bay on the south shore of Devil Lake. Here the "flowing" response of marble to intense pressures is very evident, along with glacial striations.

Two other geological features of special interest are Moulton Gorge along a probable fault, and Labelle Gorge along a strike fault or erosion valley.

Source: Gartner Lee Associates Limited Report.





5. Soils (Figure 8)

- a) A lack of extensive soil cover is prevalent. There is generally a discontinuous, thin drift of silty sand till over the bedrock throughout the entire Park. This soil seldom reaches thicknesses of more than 2'± and bedrock outcrop is prevalent. The soil becomes somewhat deeper in the valleys and troughs between the bedrock highs.
- b) Shallow Soils: Here, the soil is usually between 1 foot to 3 feet thick, and generally occupies lows between outcrops or is plastered onto the flanks of rock ridges. These areas have very little capacity for development, due to the shallowness of the soil and/or the adverse slopes or confined valley settings.
- c) Deeper Soils: There are 5 areas of deeper soils (i.e. 3' to ±5' deep) where the topography is locally less severe and the areas are capable of sustaining some development.
 - i) Kingsford - Devil Lakes - Here soils are ±3' to ±5' deep and consist of silty sand till, with some sandier and cobbly phases. Some depressions contain silts, and clays. In general the soils are well-drained. Slopes are generally flat to gently undulating within the soil areas. They become steeper where rock outcrops.
 - ii) Black Lake - Area of abandoned farming and cleared land. Soils are ±3' to ±5' deep, but may reach down to ±10' in some areas. Soils are silty sand to sandy silt tills. Outcrop does exist, with shallow soils within this area.

Slopes are flat to gently undulating.

A few wet areas with some perched water do exist, and some zones with water table at ±5' depth could exist.

- iii) Little Clear Lake - Similar to conditions at Black Lake site.
- iv) Arab - Otter Lake - Scattered, small patches of deeper soil (3' - ±5') which would support some development but areas are generally small and discontinuous.
- v) Slide - Buck Lakes - Soils consist of clays, silts sands and tills. The topography is flat to gently rolling. While the sands are well drained, the clays and silts are wet and thus imperfectly drained.

Source: Gartner Lee Associates Limited Report.





Key

- Park boundary
- Bedrock or soil less than 12 in.
- 12 in. to 3 ft.
- 3 ft. to 5 ft.

Fig. 8

Scale in miles

$\frac{1}{2}$ 0 1

Orientation



Ontario Ministry of Natural Resources
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6. Vegetation Life Units (Figure 9)

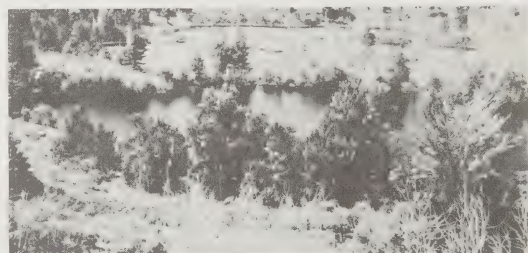
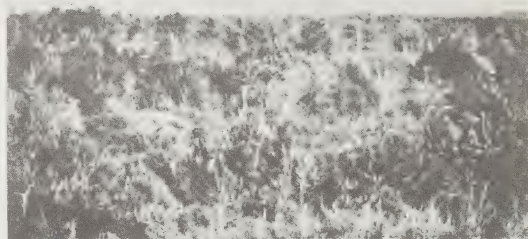
The influences of fire (mid 1800's), logging (1820-1880), agriculture, and beaver have contributed to the presence of three basic "life units" within the Park, described as follows:

Life Unit 1 - The deciduous forest complex characterizes the northern third of the Park, where rock outcrops and flooded swamps are scattered rather than continuous. The deeper soils of this area have permitted the growth of the most mature deciduous forest in the Park, with a heavy canopy of cover providing shade and cooler temperatures. The best example of this area occurs north of Bear and Lynch Lakes.

Life Unit 2 - The central portion of the Park is characterized by ridge and valley forests. The best examples of this area occur south of Arkon and Black Lakes, and north of Little Salmon Lake.

Life Unit 3 - The southern portion of the Park features extensive beaver flooding which has created aquatic vegetation in ponds and wetlands, with only scattered forests in valleys. Ridges are open. The best example of this area is centred on Little Rock, Little Black, and Cedar Lakes.

Source: "Brief Reconnaissance of the Biology of Frontenac Provincial Park Reserve"- Ian D. Macdonald 1973.





Office of the
Minister

Ministry of
Natural
Resources

416/965-1301

Whitney Block
Queen's Park
Toronto Ontario

Minister's Approval Statement for the Frontenac Provincial Park

The establishment of Frontenac Provincial Park as a Natural Environment Park provides a significant addition to the Provincial Park system in Ontario. The threshold wilderness concept for the development of the park is a very relevant theme that recognizes both the resource values of the park and the desire of the public for experiences in a natural setting as a prelude to wilderness adventures in other parks.

It is a pleasure to commend the firm of Hough, Stansbury and Associates for preparing the Frontenac Provincial Park Master Plan. The valuable commentary and advice provided to the consultants and to my staff by interested citizens and local government officials during preparation of the plan is gratefully acknowledged. I am hopeful that the high level of interest expressed by various groups and individuals will continue in the future.

This Master Plan, as approved by me, is the official policy for the preservation, development and management of Frontenac Provincial Park. It is important to point out at this time that as an interim measure, controlled snowmobiling on existing roads within the park will be permitted until March 31, 1976 in order to allow time for the planning of snowmobile trails outside of the park.

Through the implementation of the plan, I am confident that the resources of the park will be protected and that the area will provide for the fulfillment of recreational experiences.

A handwritten signature in dark ink, appearing to read "Leo Bernier".

Leo Bernier

Minister of Natural Resources
June, 1975.



Key

- Park boundary
- Unit 1
- Unit 2
- Unit 3
- Best examples of unit

Fig. 9

Scale in miles

$\frac{1}{2}$ 0 1

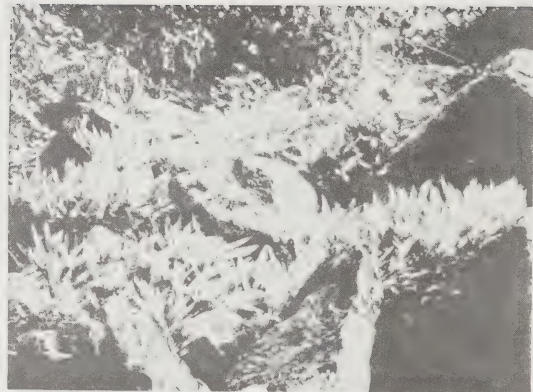
Orientation



7. Significant Flora (Figure 10)

Ian Macdonald's biological survey of the Park reveals considerable significant vegetation. The map distinguishes between significant species, types, and local interests. To protect the fragile nature of many specimens we have not included a site-specific key for the map. However, the biological survey clearly establishes the botanical significance of Frontenac Park, which includes rare ferns, sedges, orchids, mosses, trees and other specimens. Of equal significance is the range of growth habitats including bogs, marshes, swamps, valley forests, slopes, and ridges, which enable specimens to be viewed in the context of dynamic adaptation and succession.

Source: "Brief Reconnaissance of the Biology of
Frontenac Provincial Park Reserve"
Ian D. Macdonald 1973.





Key

- Park boundary
- ▨ Significant vegetation types
- General local interest
- Significant plant species

Fig. 10

Scale in miles
1/2 0 1

Orientation



Ontario Ministry of Natural Resources
Hough, Stansbury + Associates Limited

8. Lakeshore Conditions (Figure 11)

In order to inventory the physical characteristics of shorelands within the Park, we utilized aircraft in conjunction with ground checks to survey the presence of beaches, cliffs, and marshes. Cliffs and steep slopes are very common on the larger lakes within the Park, although good access to and from the shore can be found. On these lakes, marsh and sand beach shoreline is minimal in extent. Most of the small sand beaches can be found on Big Salmon, Little Salmon, and Little Clear Lakes. The smaller lakes and ponds are more commonly defined by soft marsh edges. The two best beaches are found near the boundary of the Park at Kingsford, and Otter Lakes, although they are not regionally significant. Lake access can be summarized as good or poor, depending upon slope, general terrain and steep rock cliffs.

- a) Birch Lake - Good to poor access, few steep cliffs.
- b) Kingsford Lake - Generally good access with only one poor area. No cliffs, some steeper segments.
- c) Devil Lake - Good to poor access, and two steep cliffs.
- d) Little Salmon Lake - Good to poor, steep banks, some steep cliffs.
- e) Little Clear Lake - Generally good access, but a few steeper segments.
- f) Big Salmon Lake - Mainly poor access, with a number of steep cliffs. Good access on southeast, northwest, and west.

- g) Big Clear Lake - Large, steep cliff on west arm, otherwise generally good.
- h) Camel Lake - Generally good access, with a section of 10' cliff, northwest side.
- i) Black Lake - Good, but swamp and one rock cliff ($\pm 15'$).

Source: Aerial survey and field checks by Gartner Lee Associates Limited and Hough, Stansbury and Associates Limited.





Key

- Park boundary
- Cliffs, steep slopes
- Marsh, swamp
- Beach
- Good access

Fig. 11

Scale in miles

$\frac{1}{2}$ 0 1

Orientation



9. Lake Depths (Figure 12)

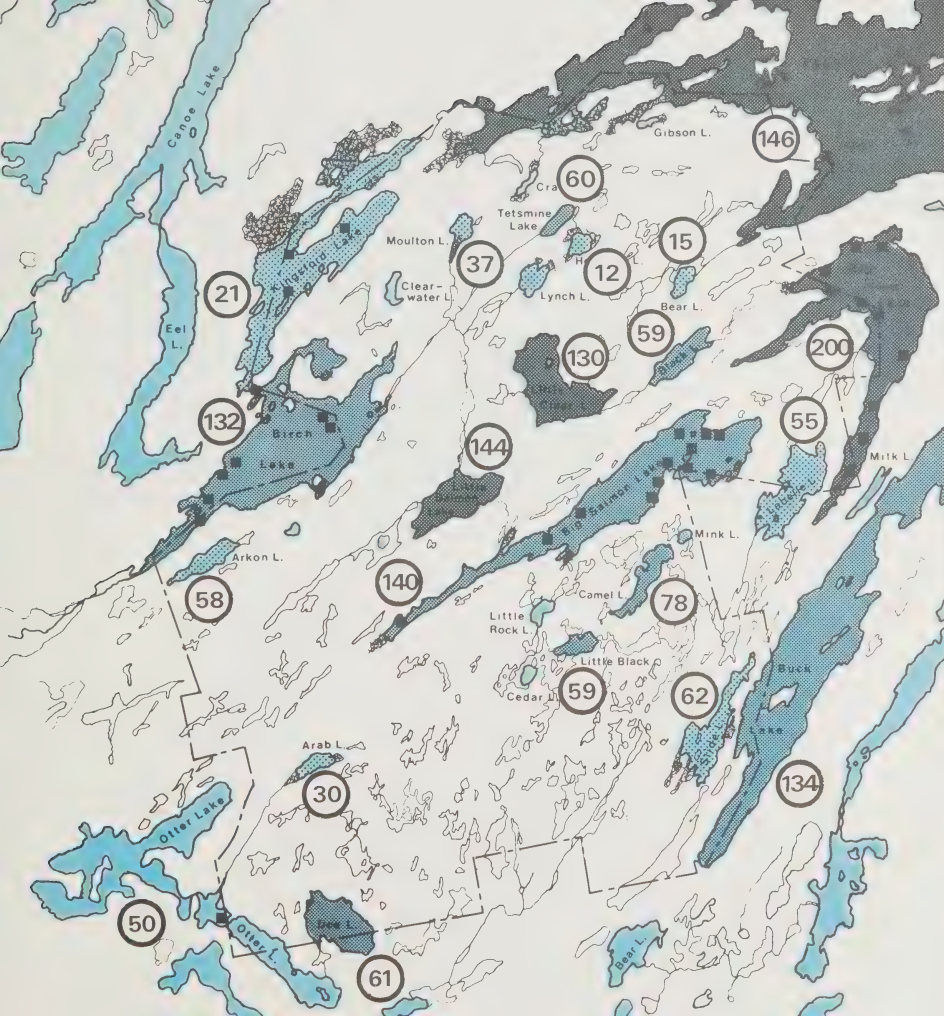
The geology of Frontenac Park has produced lake depths which bear little relationship to their surface area. Those lakes occurring at the two anticlines (Devil and Big Clear) and at the syncline between (Little Clear and Little Salmon) have the deepest mean and maximum depths. Slide, Labelle, Arkon and Kingsford Lakes, along with the smaller ponds, are the most shallow lakes in or near the Park.

Many of the small bays are marshy or contain stumps, making access to shore difficult or impossible.

The following list summarizes the physical data on the lakes of Frontenac Park.

NAME	SURFACE ACRES	MEAN DEPTH	MAXIMUM DEPTH
Arab	12.75	12.6	30
Arkon	32.7	23	58
Bear	22	9.0	15
Big Clear	463	66.0	200
Big Salmon	366	43.4	140
Birch	485	43	132
Black	32.0	27.8	59
Buck	1837	28.9	134
Camel	36	27	78
Clearwater	5.6	-	30
Devil	2623	47.1	146
Doe	54	26.0	61
Hemlock	10	-	12
Kingsford	254	-	21
Labelle	97	24.5	55
Little Clear	136.0	57.5	130
Little Salmon	94.0	54.7	144
Mink	3.2	22.6	53
Moulton	12	20	37
Otter	340	-	50
Slide	68.7	23.5	62
Tetamine	14	-	60

Source: Ministry of Natural Resources
Lake Survey Summary Sheets



Key

- Park boundary
- 5 ft. to 25 ft. (mean depth)
- 26 ft. to 45 ft.
- Over 46 ft.
- Swamps and/or stumps
- Rocks and shoals

Note: Numbers indicate maximum depths.

Fig. 12

Scale in miles
 $\frac{1}{2}$ 0 1

Orientation



Ontario Ministry of Natural Resources
 Hough, Stansbury + Associates Limited

10. Fisheries (Figure 13)

The variety of lake sizes and mean depths, combined with shoals, sand beaches, marsh, and rocky shorelines, creates a variety of suitable habitats for sport fish. In combination with a lack of any development and man-made pollution sources, these fisheries are in at least one case (Big Salmon Lake) important well beyond the immediate park, attracting fisherman throughout the Kingston Region. The map shows the particular species found at each lake, and ranks the lake relative to the other lakes only in or near the Park.

Source: Ministry of Natural Resources report
Hans von Rosen - 1973





Key

- Park boundary
- Lake Trout
- Brook Trout
- Smallmouth Bass
- Largemouth Bass
- Northern Pike

Note: Numbers refer to ranking within each species.

Fig. 13

Scale in miles
 $\frac{1}{2}$ 0 1

Orientation



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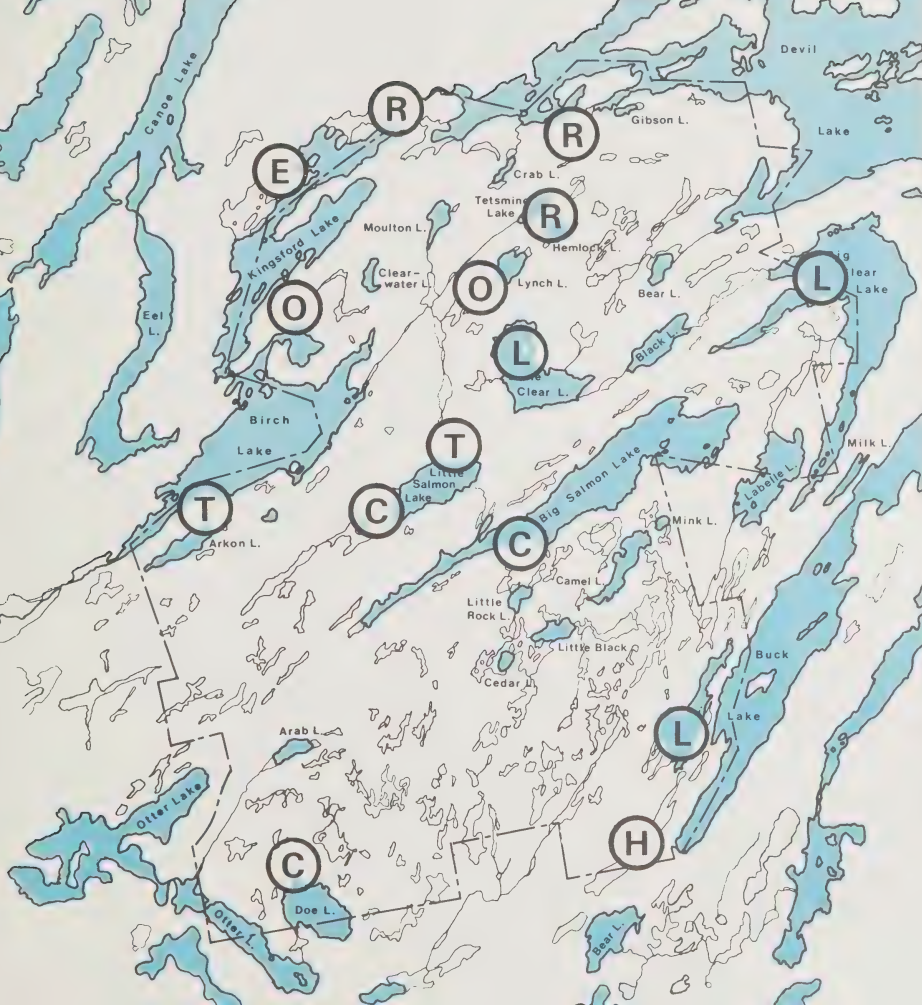
11. Nesting Sites (Figure 14)

The nesting sites indicated on the map reflect only known observations to date, and are not intended to represent the only habitat or sites exhibited in the Park. The variety in vegetation, water, and general terrain produces suitable habitat for many kinds of wildlife, especially small mammals, birds, and reptiles. As indicated later in this report, the total wildlife inventory, while adequate for master planning purposes, requires further effort before more detailed planning decisions are made.

The presence of so many known nesting sites for the higher order bird species is indicative of the wealth of avifauna present in the Park.

Source: Observations by public, I. Macdonald, and Hough, Stansbury and Associates Limited.





Key

- Park boundary
- (H) Heronry
- (E) Eagle
- (T) Turkey Vulture
- (R) Red Tailed Hawk
- (C) Cliff Swallow Colony
- (L) Loon
- (O) Osprey

Fig. 14

Scale in miles



Orientation



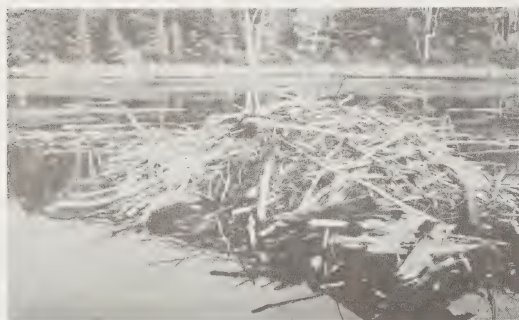
Ontario Ministry of Natural Resources
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12. Beaver Habitat (Figure 15)

No single wildlife species dominates the visual scene of the Park as much as the Beaver. As the map indicates, beaver are active throughout the Park, especially in the central and south portions. A 1973 beaver colony survey tabulated 107 live ponds with 136 active beaver houses, with an additional 87 dead ponds and 113 abandoned houses. The results of beaver activity are, of course, far more visible than the beaver themselves. The pattern of flooding, and food gathering, with resultant vegetational changes and succession, reveals the broadest possible spectrum of the beavers' niche in the ecosystem and their short and long term effects on the environment.

Only to the extent that sensitive plant life is threatened by unstable water levels and regimes are beaver regarded as a problem.

Source: Ministry of Natural Resources report
C.S. Burtch 1973.

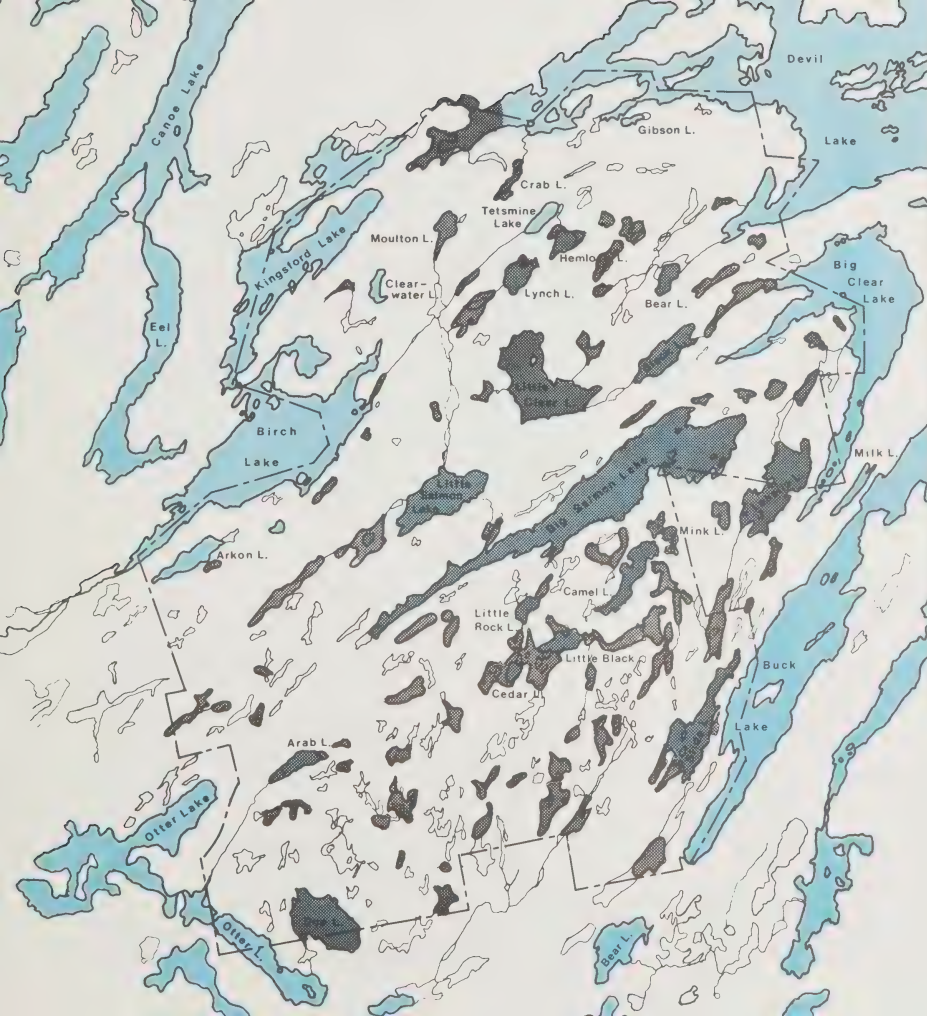


13. Other Wildlife

While additional wildlife inventories are required in the future, the following observations can be made:

- a) The low capability of the Park to sustain certain species is indicated by the Ontario Land Inventory, which shows Rank 5 (below average) for deer and ruffed grouse; with soil fertility, shallow soil, and moisture limitations. The inventory also indicates rank 7 (almost no production) for geese and puddle ducks.
- b) The Park does not appear capable of supporting any significant big game population. There are no known deer years in the Park, and estimates of deer populations from different individuals familiar with the area, never exceed 10.
- c) In terms of game, ruffed grouse and various species of waterfowl appear to be the common species in the Park, although they do not constitute significant populations.
- d) Other animals observed in the Park include coyotes, red fox, otter, mink, weasel, raccoon, porcupine, black squirrel, skunk, woodchuck, cottontail rabbits, muskrat, and chipmunk.
- e) The Park provides a pocket of habitat for the Black Rat Snake in isolation from its more common range.

Source: Ontario Ministry of Natural Resources
Ontario Land Inventory.



Key

--- Park boundary

Beaver habitat

Fig. 15

Scale in miles

$\frac{1}{2}$ 0 1

Orientation



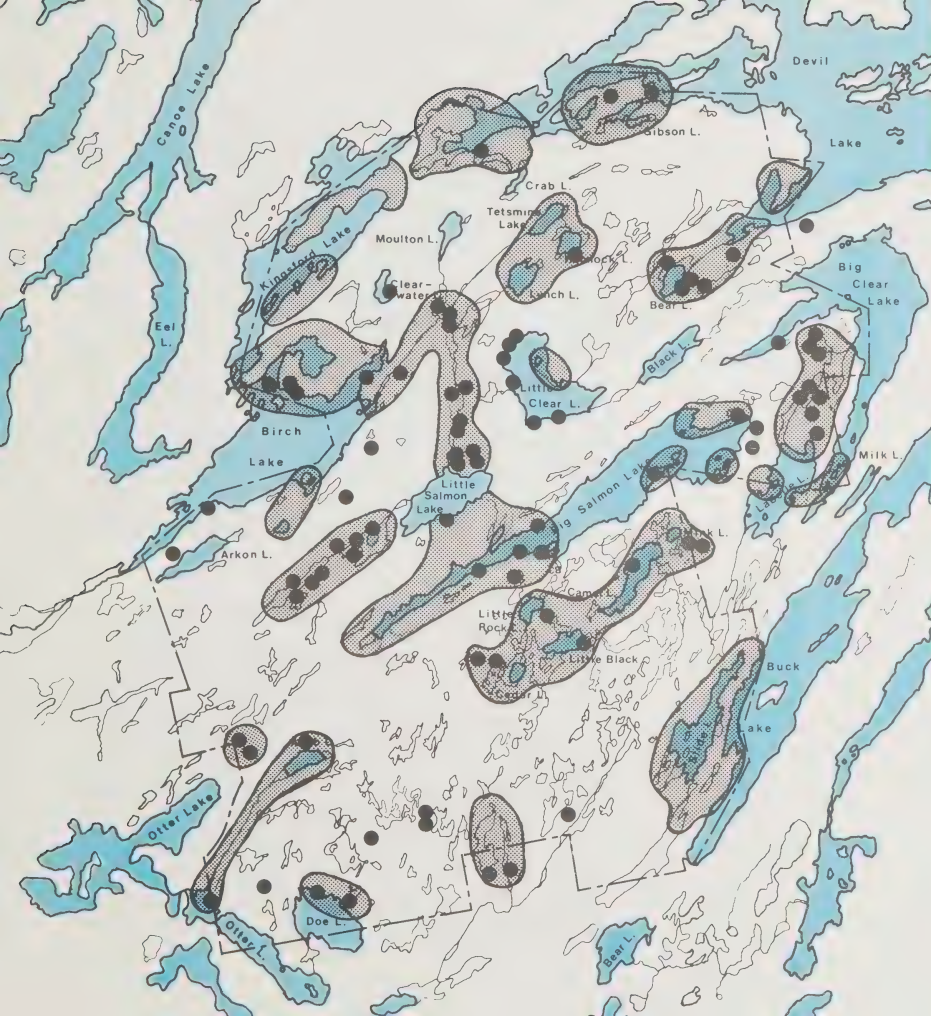
Ontario Ministry of Natural Resources
Hough, Stansbury + Associates Limited

14. Scenic Features (Figure 16)

There is always a strong correlation between aesthetics and physical/biological diversity, and Frontenac Provincial Park therefore exhibits an extensive pattern of high scenic quality. In attempting to be selective, we have indicated the most outstanding viewpoints and scenic areas observed in the Park. These viewpoints offer panoramic vistas across lakes, and more confined views of small ponds and waterfalls. The scenic areas relate very strongly to terrain formations such as ravines and pond complexes, and often encompass clusters of different viewpoints.

Source: Field survey by I. Macdonald, Gartner Lee Associates Limited, and Hough, Stansbury and Associates Limited.



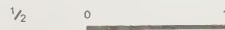


Key

- Park boundary
- Vantage Points
- Scenic Areas

Fig. 16

Scale in miles



Orientation



Ontario Ministry of Natural Resources
Hough, Stansbury + Associates Limited

15. Cultural Features (Figure 17)

Of equal significance to biology and terrain are the remnants of human activity found within the Park. Such activity can be traced back to evidence of Indian inhabitation in and near the Park at least as far back as 1783. The only archaeological artifact found within the Park was located near Slide and Buck Lake.

Subsequent colonization by white settlers within what is now the Park was strongly influenced by the development of Bedford Mills in 1829, which provided a sawmill for early loggers operating in the Park. Later, in the mid 1800's Bedford Mills provided a shipping centre via the Rideau System for minerals mined within the Park.

Possible locations of former logging chutes and a mill include Moulton Gorge and the south shore of Big Salmon Lake.

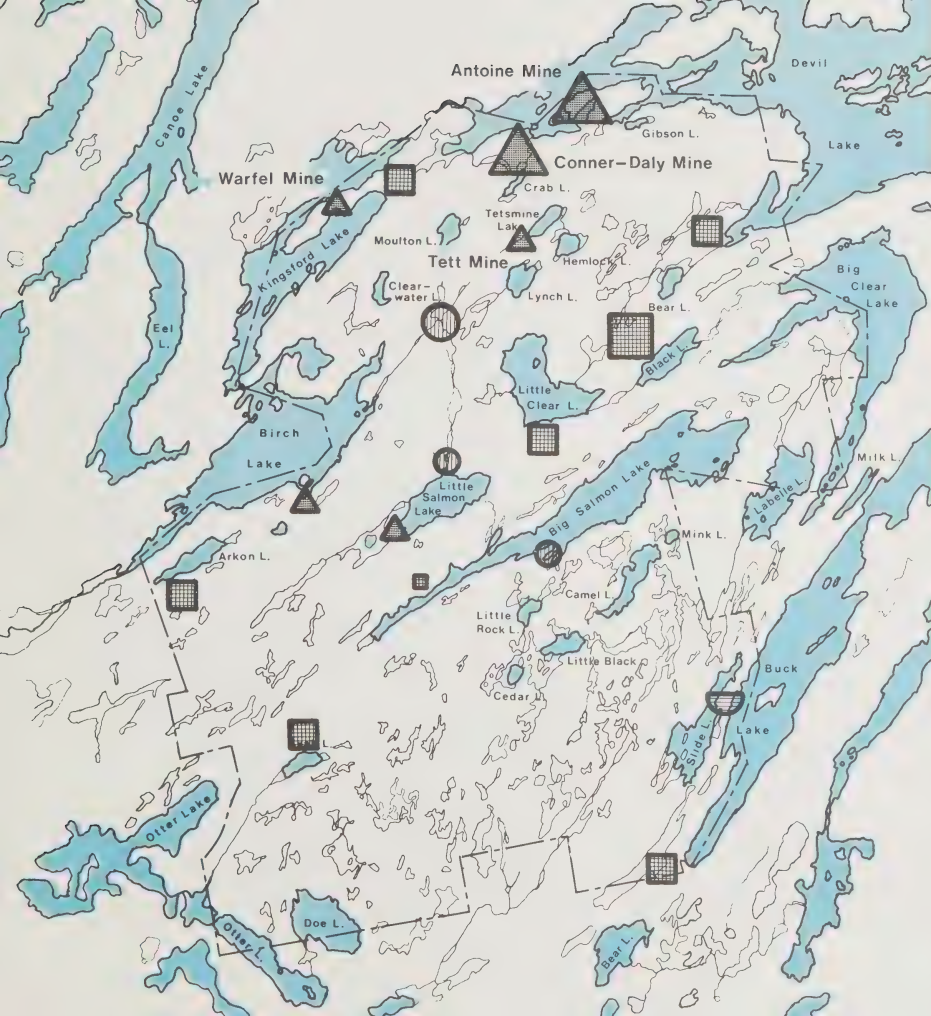
A decline in logging was accompanied by increased mining in the Park in the late 1800's and early 1900's. Mining sites within the Park include the Antoine Mine (1895-1960, mica), Warfel Mine (mica), and Connor-Daly Mine (1899-1946, mica). Remnants of mining activity at these sites are clearly visible.

Agricultural settlements consist of abandoned pastures, buildings, and traces of rusting machinery. Some of the buildings are significant to park history in terms of families such as the Tetts and Chaffeys who first established Bedford Mills.

Source: "The History of Frontenac Provincial Park"
Miss G. Lucas 1972

Mining notes by G.R. Guillet, 1974.
Gartner Lee Associates Limited.





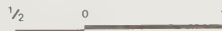
Key

- Park boundary
- ▲ Mining Sites
- Agricultural Settlements
- Logging Sites
- ◐ Indian Artifacts

Note: Size of symbol denotes relative visual impact.

Fig. 17

Scale in miles



Orientation



Ontario Ministry of Natural Resources
Hough, Stansbury + Associates Limited

B. Park Significance

The Ontario Provincial Park System provides for five classes of Park, each fulfilling specific purposes; area and location requirements; protection; and facilities. A brief "keyword" description of each class is as follows:

Primitive -	unspoiled wilderness; dispersed, low intensity recreation; non-destructive scientific study; usually in excess of 25,000 acres; vehicles excluded; no resource extraction.
Wild River -	aesthetic and historic river or connected lake travel routes; dispersed water travel by canoe; modified multiple use to protect recreational enjoyment; minimum lengths of one day's normal canoe travel.
Natural Environment-	combination of Provincially - significant biological, recreational, and historical resources; moderate and low intensity recreation, with emphasis on dispersed recreation and education; modified multiple use to protect recreational, aesthetic, and educational values; overnight use; normally of substantial size.
Recreation	substantially altered natural settings; user-oriented with either very intensive day-use or moderately intensive overnight use; limited opportunity for extended forms of recreation; normally less than 1,000 acres.

Nature

Reserve - unique natural areas preserved for science and education, with limited recreation if compatible.

Frontenac Provincial Park has been classified as a Natural Environment Park, and the following portion of this report deals with the significant value of this Park to the Eastern Region Park System.

1. The Regional Park System

Figure 18 lists the existing and proposed Provincial Parks within the Eastern Region, and Figure 19 outlines the types of existing development. Allowing for potential reclassifications and consolidation, the chart reveals a future regional system comprised of 0 Primitive, 0 Wild River, 8 Natural Environment, 1 Nature Reserve, and 9 Recreation classes of Park. The absence of the Primitive and Wild River classes of Park is consistent with the extent of urbanization and type of land use in Eastern Ontario.

The result of this absence, however, places the pressures for dispersed recreation such as hiking and canoeing solely upon Natural Environment Parks. As indicated in figure 20A, the Natural Environment Park occupies a rather wide gap between the extremes of Primitive and Recreation Parks which can be defined in terms of more narrow spectrums of use. Although clearly intended to provide for dispersed forms of recreation in a resource-oriented atmosphere, this Park class appears to range from near-Primitive to near-Recreation in actual development character.

Certain Natural Environment Parks in the Eastern Region, such as Presqu'ile, Sandbanks, and Outlet Beach, while based upon significant natural features, have inherited a pattern of intensive development which is inconsistent with the intent of the Natural Environment class.

Current review and planning by the Ministry of Natural Resources is aimed at modifying existing development to more accurately reflect Province-wide significance and Natural Environment experiences. Figure 20B therefore, conveys a possible future application of the Park Classification system in which the Natural Environment class occupies a more carefully-defined spectrum of allowable development and use.

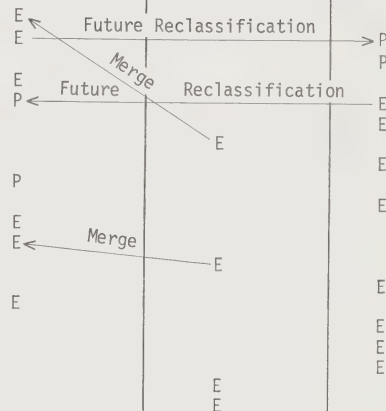


CLASSIFICATION

E = EXISTING

P = PROPOSED

Name	Total Existing Acreage	Total Potential Acreage	CLASSIFICATION				
			Primitive	Wild River	Natural Environment	Wilderness Area* or Nature Reserve	Recreation
Bon Echo	16,235	16,567					
Carillon	1,714	3,650					
Casey Point	81	81					
Charleston Lake	3,900	10,790					
Ferris	503	525					
Fitzroy	435	578					
Kishkebus Lake	332	332					
Lake on the Mt.	256	775					
Murphy's Point	2,700	5,745					
North Beach	490	806					
Outlet Beach	675	675					
Presqu'ile	1,574	1,896					
Presqu'ile Island	322	322					
Rideau River	214	414					
Sandbanks	1,802	1802					
Sharbot Lake	98	311					
Silver Lake	76	326					
South Nation	13	13					
Tickell Island	1	1					
Timber Island	101	101					
Sub Total	31,522	43,233	0	0	6 Existing, 7 Future E	3 Existing 2 Future	8 Existing 9 Future
Frontenac	12,222	12,222 +					
Grand Total	44,744	55,455+	0	0	7 Existing 8 Future	3 Existing 1 Future	8 Existing 9 Future



*As created by the Wilderness Area Act
Source: Eastern Region (Kemtpville) Ministry of Natural Resources

PARK	LOCATION	DESCRIPTION	CAMPSITES	FACILITIES	HISTORICAL INTEREST	DAY USE	OTHER ACTIVITIES AND FACILITIES	INTERPRETIVE PROGRAMS
Bon Echo (N.E.)	On Hwy. 41 19M. N. of Kala 6 M. N. of Clayne Frontenac County	Over 16,000 acres 500 acres developed Outstanding feature is Bon Echo Rock Maxine Lake Campgrounds moderately mixed forest cover	3 separate camping grounds 70 trailer (pull-thru) 325 tent/trailer 5 walk in Full July and 1st wk. Aug Full weekends last 3 weeks Aug	*	Indian Paintings on Bon Echo Rock Colonization Road built 1850's Limestone Caves near Eganville (50M)	Parking for 360 cars 15 acres of picnic area **	Swimming Fishing Canoeing Waterskiing 50M snowmobiling 4 change houses	Self guided trails (4M) Evening programs twice weekly in Amphitheatre
Outlet Beach (N.E.)	11M S.W. Pictou Via Prince Edward County Road 10 and 11	Approx. 675 acres 500 developed Sand dune ridges along Lake Ontario Campgrounds moderately mixed forest cover	8 group camp areas accom. up to 200 or so 3 separate camp grounds 30 trailer (pull-thru) 452 tent/trailer Full July & 1st wk Aug Full wks, last 1 wk Aug	*		Parking for 2000 cars 200 acres of picnic area **	25M patrolled swimming 12 change houses Fishing No restrict. on motor size Snowmobiling	Self guided trails (3/4M) Evening programs twice weekly in Amphitheatre
Presqu'ile (N.E.)	Lake Ont. 3M S. of Brighton Off Hwy #2 On County Rd. #66 Northumberland	Total area 2170 acres Marsh, meadow, beach and sand dune areas Park is peninsula into Lake Ont. with access to Trent Canal System Campgrounds forested	100 trailer (pull-thru) 419 tent/trailers Full on summer weekends only	*		Parking for 2000 cars 20 acregreen grass 20 picnic shelters W/flushing booth W/refreshment booth	15M patrolled beach 5 sets of change houses Fishing/boating/waterskiing Private launching ramps 15M snowmobiling	2 marked trails (3M) Conducted hike (July Aug.) Evening programs 3 times weekly
Sandbanks (N.E.)	25M S. from Bellefleur via Hwy 14 to Bloomfield Sand bar between L. Ont. and then County Rd. 12 Prince Edward City	1200 acres 50 acres developed Sand bar between L. Ont. and then County Rd. 12 Extensive reforestation to control sand movement	50 tent/trailers Full summer wks only Sites used to supplement Outlet Beach Camp areas	Privy toilets, water tables, grills and firewood	Settler's Museum nr. Naumoo (20M) Ancient Lighthouse (Point Petre-14M)	Parking for 980 cars Runing water, privy toilets, tables, grills Shaded & open picnic areas Change houses	5M grad. sloping beaches Deep water on west side Fishing Private launching ramps close to park provide access to West Lake for waterskiing	
Charleston Lake (N.E.)	12M W. of Hwy 481 at Lansdowne exit On Cty. Rd. 3 West side of Charleston Lake Leeds County	2064 acres New park (unavail. descrip.)	100 tent/trailer Never full	4 comfort stations Hot water in each camping area	Historic site within park (i.e. Indian Shelters)	Minimal Parking area and use of camper's beach	1 beach not patrolled 2 changehouses Fishing Boat launch ramp and dock	Self guiding nature trail (2M)
Lake on the Mountain (Rec.)	5M E. of Pictou along Hwy 133 to L. on Mtn. Rd. Prince Edward City	256 acres, small picnic area and parking lot On edge of 170' escarpment into Bay of Quinte Great scenic view	None	None		Parking for 35 cars Shaded & open picnic areas Washroom, running water, tables, snack bar within walk dist.	Fishing No prov. for swimming No motorized boats on lake	
North Beach (Rec.)	1.4M W. of Hwy. 33 at about 12M S. of Trenton Prince Edward City	221 acres Sand bar between L. Ont. & North Bay Sparse tree cover	None	No camping facilities	Carrying Place (a site once used by Indians as a Portage between Lake Huron and Bay of Quinte-8M from park)	Parking for 775 cars Change houses, running water, tables, vault, privy toilets	1M sand bar with gradual slope into L. Ont. for good patrolled swimming 1M steeper beach on N. side patrolled swimming Fishing, boat launching no motor restrictions	
Perris (Rec.)	On Hwy 30 about 30M W. of Brighton On Trent River Northumberland							
Sharbot Lake (Rec.)	Midway between Peterborough & Oshawa on Hwy 7 (formerly Black Lake)	98 acres Fronts both Sharbot & Black Lake Good mixed hardwood forest cover 50M N. of Kingst. Frontenac Cty.	200 tent/trailer Full summer wks only	*		Parking for 150 cars About 10 acres of picnic area Privy toilets, water outlets, tables, grills	500' of sandy swimming area (not regularly patrolled) 2 change houses Fishing, boat launching and docking and waterskiing Snowmobiling	Trail (1M) Films with environmental theme presented weekly in Amphitheatre
Silver Lake (Rec.)	On Hwy 7, 18M. W. of Perth Between Frontenac & Lanark Counties	78 acres Rugged hardwood terrain on Silver Lake	18 trailer (pull-thru) 179 tent/trailer Full summer weekends only	Flush & vault toilets, hot water, laundry facilities Patrolled at night Fogging program		Parking for 180 cars Flush toilets, picnic shelter, slide and merry-go-round and open area Fogging program	2 beaches, 1 supervised 2 change houses Fishing Small lake therefore limited boating	Films and/or slides weekly
Rideau River (Rec.)	3M N. of Kemptonville on Hwy 16 Border Carleton and Ottawa Counties	170 acres Flat terrain on Rideau River Good cover of planted conifer	25 trailer (pull-thru) 160 tent/trailer Filled summer holiday weekends only 2 group areas-capable of 200 each	Flush & vault toilets, hot water, laundry, supplies Patrolled at night Fogging program		Parking for 650 cars Flush & vault toilet 1 picnic shelter Slide & Merry-go-rounds, & open area for rec activity Insect program	3 beaches 4 change houses Some supervision Fishing Boat size restricted by Rideau Canal lock size	Films weekly and or slides Self guided nature trail
Elizavoy (Rec.)	1M N.E. of village of Fitzroy Harbour Carleton County	457 acres Rolling Land on Ottawa R. Split by Carp R. Covered with mixed mature hardwoods and conifers	27 trailer (pull-thru) 238 tent trailer Never full all group area capacity 500	Flush & vault toilets, hot water, laundry facilities Patrolled at night Fogging program		Parking for 535 cars Vault toilets Slide, merry-go-round, open area Fogging program	2 beaches, 1 supervised 3 change houses Fishing Motor sizes restricted to 20 H.P. due to shallow water Snowmobiling (4 miles)	Films and/or slides weekly Booklet of history of area.

* Comfort stations: hot and cold running water; privy toilets; water outlets; fuel wood, milk and ice deliveries or grocery concessions; insect spraying; patrolled at night; trailer dumping station; group camping area

** Comfort stations with privy toilets, water outlets; tables; grills; picnic area; picnic shelter

Source: Peter Barnard Associates.

A

THE PAST APPLICATION OF PARK CLASSES

	← Primitive →	← Natural Environment →				← Recreation →
	Narrow spectrum of dispersed use	Wide spectrum from near-primitive to near-urban day-use				Narrow spectrum of intensive use
Examples:	Polar Bear	Killarney* Quetico*	Algonquin	Bon Echo Charleston Lake	Outlet Beach Presqu'ile	North Beach Rideau River

B

THE INTENDED APPLICATION OF PARK CLASSES

	← Primitive →	← Natural Environment →				← Recreation →
	Narrow spectrum of dispersed use	Moderate spectrum of dispersed use in provincially significant environments				Wide spectrum of moderately and highly intensive use
	Large areas	Moderate areas				Small areas
Examples:	Polar Bear Quetico Killarney	Algonquin Frontenac Bon Echo	Outlet Beach Presqu'ile	Charleston Lake	Carillon North Beach	Silver Lake Rideau River

* Based upon 1972 classification

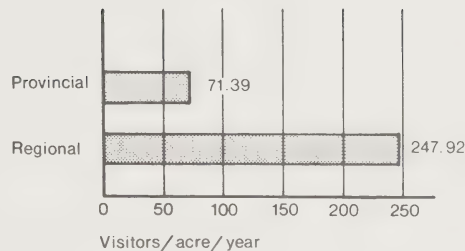
2. Visitor Pressures

A review of the 1972 Ontario Provincial Parks Statistical Report confirms high visitor pressures on Parks within the Eastern Region. In 1972, Recreation class Provincial Parks in the Region accommodated 14% of total Provincial visitation to this Park class, on only 4.11% of the overall acreage. The pressures in regard to Natural Environment Parks were even more severe, with the Region providing 17% of the total Provincial visitors on only 0.64% of the Natural Environment Park acreage. It may be argued that these figures are somewhat distorted and would be more accurate if only "developed" acreage were compared, since the larger northern parks accommodate most visitors in relatively small areas adjacent to extensive buffer areas.

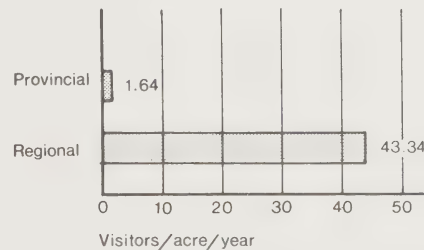
Such a point of view, however, only confirms the fact that Parks in the Eastern Region generally lack such large buffers and sustain heavy use per unit of area. The 1972 Statistical Report reveals a Provincial average of 71.39 visitors per acre per year for Recreation Parks, whereas the Eastern Region accommodates 247.92 visitors per acre per year. For Natural Environment Parks, the average Provincial density on the same basis is 1.64, while for the Region the density is 43.34 visitors per acre per year (Figure 21). Eastern Region Recreation Parks, therefore, sustain $3\frac{1}{2}$ times the intensity of use, and Natural Environment Parks over 26 times the intensity of use as the respective Province-wide Park system.

This data indicates the great importance of Frontenac Provincial Park providing to the Eastern Region recreational experiences more consistent with the Provincial-wide System of Natural Environment Parks.

Recreation Parks



Natural Environment Parks



3. Park Significance

The review of the Regional Park system and the visitor pressures on it, pose a very basic planning decision concerning Frontenac Provincial Park. As the second largest park in the Eastern Region, it could be argued that Frontenac Park should be planned and developed to ease the existing and future visitor pressures on the remainder of the system. This point of view would hold that, unless Frontenac Park is developed to maximize the opportunity for both intensive and extensive forms of public recreation, the density of use on existing parks will become even more intense. This particular point of view, however, is not advocated. Virtually a plurality of all public groups and individuals have recognized that, within the current classification, Frontenac Park, in view of its existing unexploited state probably holds the greatest potential for realizing the characteristics outlined as ideal for the Natural Environment Park.

Recognizing further that areas of this order of magnitude in Southern Ontario will be most difficult if not virtually impossible to acquire in the future, the significance of this Park becomes readily apparent.

It is increasingly accepted that public open space should be managed in a manner commensurate with its maximum potential and the extent of its geographical attractiveness. It is highly unlikely that another area offering the same opportunities for extensive natural environment recreational activities will be acquired in this portion of the Province. The Frontenac Axis is unique in that it provides a zone of Shield type topography penetrating the Paleozoic of southeastern Ontario and offering a range of experiences not found elsewhere in public ownership until one reaches Algonquin and Killarney Parks. As such it can cater to a similar package of activities and create an intervening opportunity for southeastern Ontario, taking some pressures off the other Natural Environment Parks on the Shield as well as providing

a new destination for some of the more backwoods-oriented users from the urban areas. The user market will be largely urban and will extend to greater than 75 miles from the Park.

Having this potential, it seems important that Frontenac be utilized in such a way as to capitalize upon its particular attributes. Some of the growing demands for more easily met activities, (normal family camping, swimming and other forms of recreational day-use etc.) can be met equally well on smaller blocks of land more readily available, or at least more easily assembled.

It is with these facts in mind that Frontenac is viewed as a highly significant addition not only to the Eastern Region but the entire Provincial Natural Environment sub-system. As such it must not be subjected to the stresses that would develop if it were forced to absorb the bulk of lower-order demands. These obviously exist and will very likely continue to dominate the demand spectrum for some time. To sacrifice, however, the higher-order uses which may be satisfied only on a unit having this magnitude and package of characteristics would in the long run, if not immediately, deny the total Provincial Parks System an outstanding element of added quality and diversity.

In acknowledging the special attributes of Frontenac Park relative to its situation in the Province, and acting within these accepted parameters, the Ministry must then continue to build as required the other elements of the system-smaller recreation parks, Conservation Areas, units of the St. Lawrence Parks Commission, and opportunities ancillary to the Rideau Waterway, in order to continue meeting and catering to the other elements of the demand spectrum which should be developed away from Frontenac. It should be noted, however, that the very slow growth rates in the local area do suggest that the demands for

local day-use and short term facilities will not be sufficient to place undue strain on the provision of these types of opportunities (see figure 22).

Despite the findings of any detailed analysis of current, future and latent demands, the maintenance of a balance within the system, based upon resource capability and a sustained environmental quality must finally influence the decision making process. Only in this way will the optimum benefit of Frontenac Provincial Park accrue to the system and its users.

	POPULATION: 1972	GROWTH 1967 - 1972
Ottawa -Hull	612,700	29%
Kingston	59,000	0%
Belleville	35,300	13%
Trenton	14,700	13%
Ontario	7,800,000	21%

Source: Financial Post Survey of
Markets, 1972 - 1973.

PHASE 2: RECREATION CAPABILITIES

A. Intensive Use Capability

For purposes of this study, we have defined "capability" as the existing or potential ability of the Park to attract and sustain a particular recreational use or array of uses. When used to evaluate a wide spectrum of uses, capability studies can isolate those uses which are compatible from those which cannot be accommodated. Our initial capability studies, given the background of Park inventory, significance, and classification, were concerned with the most intensive use likely to be proposed for the Park- family camping. In so doing, we were able to concentrate on a single key use, and the alternative locations within the Park capable of attracting and sustaining such use. The ability to provide for some family camping was anticipated to be a pivotal factor in developing alternative concepts for the Park. At this point in the planning we were essentially concentrating on the qualitative aspects of alternative locations, with numerical capacity evaluations to be undertaken in Phase 4. The capability to sustain family camping activity was evaluated through a series of overlays, each representing a specific, positive factor favorable to such development. The initial factor, deep soil, immediately reduced the available locations to five sites:

- 1) Arab-Otter Lakes
- 2) Kingsford Lake Beach
- 3) Little Salmon Lake
- 4) Black Lake
- 5) Slide Lake

Thereafter, the other overlays were applied only to those five locations, in order to assess the relative environmental quality of each site. Positive factors used in the overlay process are described as follows:

- a) Deep soil - those areas exhibiting deeper soils, and having capability to withstand traffic; sustain vegetation; and allow for ease of road, path, and campsite construction without costly rock excavation and/or excessive filling.
- b) Forest cover - the presence of a well developed forest canopy and understory which, given selective thinning for campsite development, will provide for privacy between sites and screening from roads.
- c) Road access - the feasibility of providing road access from the Park Boundary to the campground location.
- d) Beach potential - the availability of sand beaches near the campground for swimming use.
- e) Interpretive features - the presence of interpretive features near campground locations, suitable for day-use loop trails etc.
- f) Motor boating - the potential for controlling motor boat use on interior lakes versus uncontrolled use on lakes having private development.
- g) Hiking - the potential connection of the campground area into a network of hiking trails.
- h) Canoe routes - the potential connection of the campground area into a portage or lakeshore along a system of canoe routes.
- i) Scenic quality - the availability of overlooks and scenic features as enhancement of the campground.

Following the application of all positive overlays, the five locations were then screened for any potential conflicts. The presence of special

	Deep Soil	Forest Cover	Road Access	Beach Potential	Interpretive Features	Motor Boating	Winter & Summer Trails	Canoe Route	Scenic Features	Conflicts
Kingsford	Good	Excellent	Short, but requires right-of-way	Excellent	Good history, biology	Yes	Good (moderate to poor in winter)	Good	Moderate	Superimposed on early settlement remnants and significant plant species
Little Salmon-Little Clear	Good	Moderate to Sparse	Yes, but uncontrolled private use	Poor	Good (history)	No	Good	Moderate	Excellent many viewpoints and Moulton Gorge	Superimposed on early settlement remnants
Black Lake	Good	Moderate to Sparse	Yes, but uncontrolled private use	Poor	Good (history)	No	Good	Moderate	Excellent near Hardwood Bay	Superimposed on major early settlement
Slide Lake	Good	Excellent	Yes, but requires expensive upgrading	Poor	Good (biology)	Yes, on Buck; no on Slide	Good (poor in winter)	Moderate	Moderate scenic area but no major viewpoints	Near heronry and loon nesting sites
Arab-Otter Lake	Moderate	Good	Excellent existing road with minimal upgrading	Excellent	Good (biology)	Yes, can be zoned	Good	Good	Excellent near Arab Lake gorge and Doe Lake	Adjacent to significant vegetation area

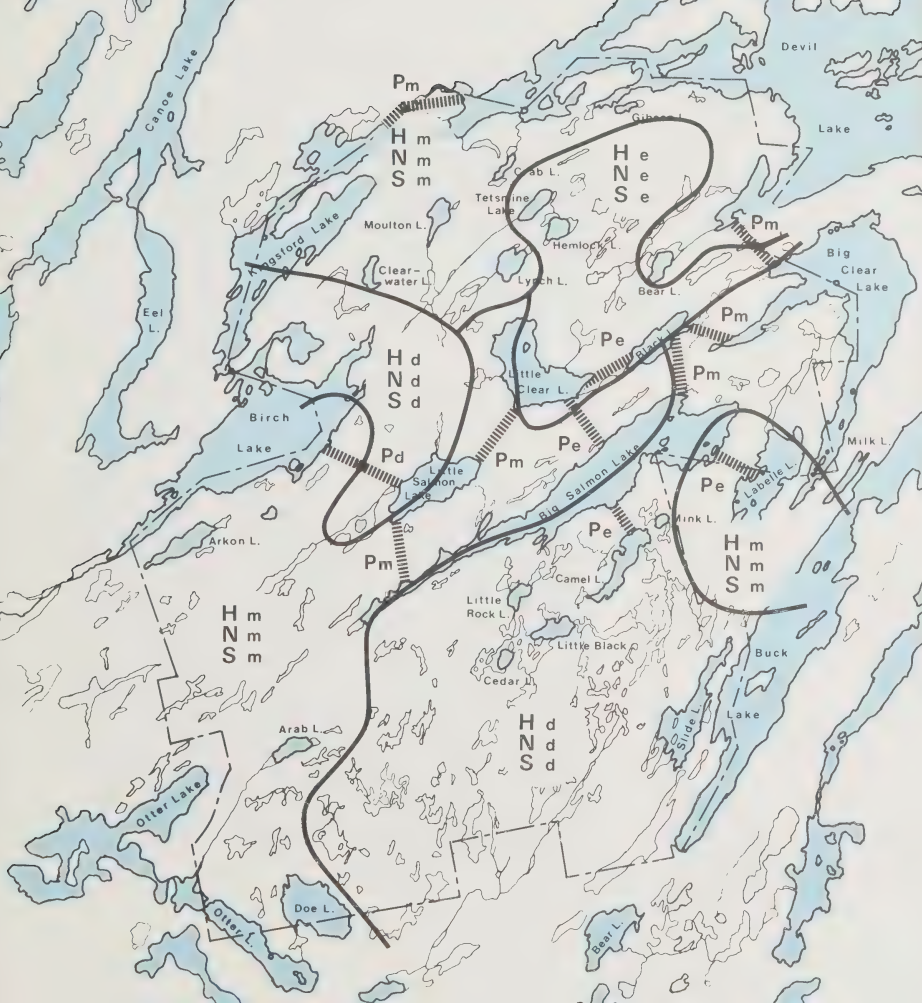
vegetation, bird nesting sites, or historic features were recorded, and if within or adjacent to the potential campground area were recorded as potential conflicts. A summary of the overlay evaluations in the form of a chart is shown in Figure 23. Of the five sites, Kingsford Lake Beach and the Otter/Arab Lakes areas were considered the best. Both required minimal road improvements, contained good beaches, scenic quality, and trail/canoe route locations. Conflicts were limited to adjacent lands, and were felt to be controllable given good site planning and design. The Black Lake and Little Salmon/Little Clear Lake areas were larger, but lacked good forest cover, beaches, and access to canoe routes. They also depended upon access roads already developed for private use, and occurred directly within sensitive historical areas. The Slide Lake area lacked a beach and easy road access, and was considered to be too remote from most attractions within the Park.

B. Extensive Use Capability

Extensive forms of recreation, such as hiking, canoeing, snowshoeing, and Nordic skiing are dependent upon linear mobility rather than the characteristics of a central location. Shelter from wind; steepness of slope; ground texture, length of portage and availability of drinking water are some of the many parameters which govern capability for extended recreation. The analysis of specific capability therefore often requires a careful inventory in greater detail than is necessary for Master Planning. A more

general evaluation for Master Planning purposes has been made by testing the basic forms of extended recreation travel against the inventory of the Park. This evaluation is summarized in the following map (Figure 24) but should be confirmed with further field analysis.





Key

- Park
- H Hiking
- N Nordic skiing
- S Snowshoeing
- P Portage

Degree of difficulty:

- e Easy
- m Moderate
- d Difficult

Fig. 24

Scale in miles



Orientation



PHASE 3: PARK GOAL AND CONCEPTS

In the absence of any established goal for a Provincial Park, a broad spectrum of contrasting concepts is usually available for careful study and selection. The choices would appear to be limited only by a pre-established Park classification, and the professional limits of the planner or administrator in regard to the degree of ecological modifications he can ethically propose. The constraints on concepts imposed by a Natural Environment classification are not severely limiting, as various combinations of internal primitive, development, historical, natural, multiple-use, and hinterland zones can allow a fairly wide range of development densities, access modes, and site modifications. In such a situation, it would likely be possible to propose a minimal development concept; a broad recreation facility-oriented concept; and a number of intermediate concepts falling between the two extremes. The final selection would then have to be made from among many highly contrasting options.

The approach being taken on Frontenac Provincial Park is significantly different in that a valid goal and objectives have been established prior to delineating alternative concepts. Such goals are a result of careful study of the Parks resources; its potential place in the regional park system; and the ideas expressed in public meetings by interested groups and individuals. Although the range of alternatives becomes much more limited, with less distinct differences among concepts, the direction given by an overall goal eliminates superfluous and often ill-considered options from being given equal consideration alongside sound Park concepts.



A. Goal and Objectives

The following goal and supporting objectives have been established for Frontenac Provincial Park.

1. Overall Goal

To provide for high quality dispersed recreation in an outstanding Natural Environment of regional significance, within the total Provincial System of Parks.

2. Supporting Objectives

- a) To design, develop and manage Frontenac Park in such a manner as to maintain its resources and environments primarily in their existing state.
- b) To develop a concept which is responsive to the physical, biological and cultural attributes of the park, as opposed to attempting to satisfy the entire spectrum of regional recreation pressures.
- c) To create an image which promotes the area as an extended-use primary-destination rather than a transient park.
- d) To provide within the context of the designated classification an internal zoning system which will most effectively provide for the optimum array of appropriate extensive recreational opportunities in the Park.
- e) To emphasize travel modes within the Park which are compatible with the overall objectives of the Park classification, maximizing the "sense of discovery" in the Park, utilizing non-vehicular modes of circulation.
- f) To encourage protection and enhancement of the scenic and historical qualities of the access road corridors leading to Frontenac Provincial Park, providing recreational experiences long before the Park boundary is reached.
- g) Recognize and keep in perspective the role of this unit relative to the remainder of the Parks System.



B. Features Common to All Concepts

In satisfying the Park goal, certain proposals become common to all concepts, and are described as follows:

1. Access Route Protection

A fifty mile circuit utilizing existing county and township roads has been delineated, connecting Westport on the northeast with Sydenham on the southwest. This scenic access corridor surrounds Frontenac Provincial Park, and must be utilized by all visitors traveling to the Park by car, whether from Toronto, Kingston, or Ottawa. Throughout most of its length, the circuit is of a very low design standard, often unpaved and characterized by a sharp curvilinear alignment flowing from ridge to ridge. By limiting road improvements to those necessary for safety, in combination with scenic landscape management principles, the outstanding scenic qualities of approach roads to the Park can be preserved for future visitors (see Figure 25).

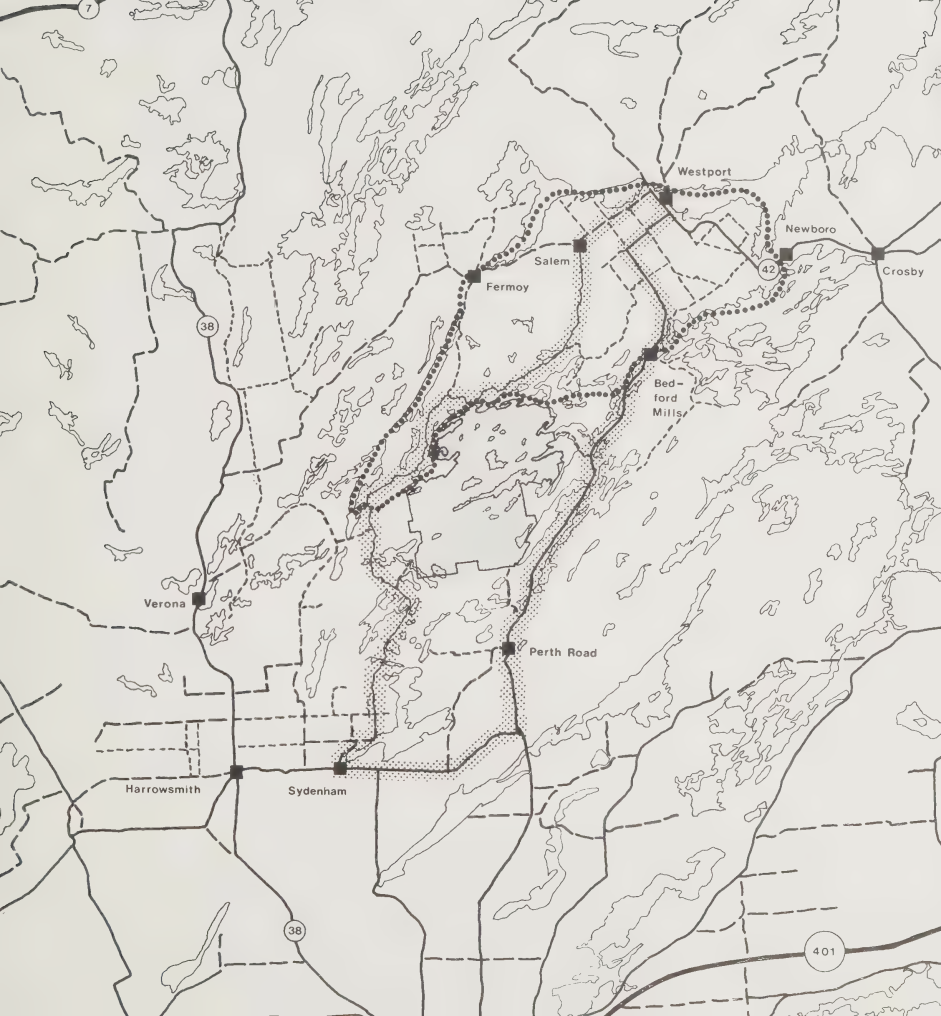
In addition to auto access roads, there exists a potential for a 40 mile canoe route extending westward from the Rideau Waterway, skirting the northern boundary of the Park. This route would leave the Rideau at Newboro Lake, traversing Loon, Devil, Kingsford, Birch, Desert, Canoe, Wolfe and Westport Lakes, returning again to the Rideau Canal. This route would expand the recreational opportunities offered by the Rideau Canal by providing access laterally to a major Provincial Park. Every effort should be made to protect the feasibility and quality of this potential regional canoe route adjacent to Frontenac Provincial Park.

The Rideau Trail provides a third means of access to and within the Park, providing hikers with one of the most natural and therefore popular sections along its entire length from Kingston to Ottawa.

This trail has been created through voluntary action and co-operation among trail association members and landowners, and as a result is a rather fragile collection of linkages moving through areas of varying land use and development. The section existing within the Park represents the longest length of trail through undeveloped woodland over the Rideau Trail's entire route from Kingston to Ottawa. Although the trail can be relocated within the Park for improvements to the hiking experience (as well as better relationships to other user areas), the Park can and should protect the natural quality of the trail and demonstrate the co-operation vital to safeguarding the long range values of such a regional recreational attraction.

2. Land Acquisition

A program of further land acquisition is recommended to ensure both short and long range protection of Park resources; including road and trail access feasibility; access corridor quality; biological sensitivity; camping potential; and aesthetic values. The recommended program includes all present in-holdings; and key boundary properties at Otter Lake Picnic Area; Kingsford Lake Dam; Devil Lake headland; Labelle Lake Shoreland; Big Salmon Lake shoreland, and the southern block along the Rideau Trail.



Key






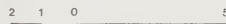
-  Frontenac Provincial Park
-  Major Roads
-  Minor Roads
-  North Boundary Canoe Route
-  Scenic Access Corridor

Fig. 25

Scale in miles



Orientation



3. Use Exclusions

In order to protect fragile Park resources, reduce user conflicts, or otherwise satisfy the Park Goal, a number of specific recreation uses have been excluded from all concepts of Park development. The critical nature of such exclusions warrants explanation. The informal meetings held with individuals and groups produce a wide array of requests both for and against specific uses being included in the Park. It became apparent that certain controversial issues would have to be resolved in the light of increasing knowledge of Park resources and a developing set of Park goals. We feel that the following two points are important to further discussion of specific use exclusions:

- Controversy tends to polarize people into identifying themselves as single-use advocates, which is rarely the true case. Most users of any Park will engage in a number of uses at different times of the year, or even during a particular length of stay. However, in identifying themselves with a particular cause, and seeing that cause excluded, they tend to feel discriminated against as users, rather than seeing that the Park is still available to them and all others to participate in those uses which are allowable.
- When faced with exclusion of particular uses, the argument is raised that "all Parks are for all People", especially the taxpayers who contribute to Park acquisition and development. As an overall philosophy, the statement is true. However, it is the overall Park system which must cater to the public need, and not all needs can or should be met

in each and every Park. The characteristics of particular uses which make them incompatible with certain other uses and specific site conditions, warrant use limitations in virtually every Park. The best way to ensure that the public is best served by its Park system is to provide a wide variety of Park types in which all people having legitimate recreational needs can find opportunities for high quality enjoyment. To attempt to provide that array in a single Park is to create user conflict, impair fragile resources, and lower the recreation experience for all concerned.

The recommended use exclusions are explained as follows:

- a) Snowmobiles, trailbikes, and other all-terrain-vehicles (ATVs)
 - i) Exclusion of use within Park will not create a barrier to regional use patterns. Routes around the Park are already well-defined and popular.
 - ii) Other opportunities exist within the Regional Park System for snowmobile use (see Figure 26).
 - iii) Much of the Park Flora is of sufficient significance to warrant Nature Reserve status. Potential damage from ATVs is too great a risk.
 - iv) The noise generated by ATV operation would be audible throughout the Park violating the concept of "Natural Environment" and conflicting with non-motorized use in the form of hiking, snowshoeing, Nordic skiing and canoe-tripping.



Key


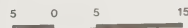
- Park boundary
- 1 Bon Echo Trail (25 miles)
- 2 Bon Echo Provincial Park (50 miles)
- 3 Highlands of Hastings (350 miles)
- 4 Point Petre Recreation Area (trails to be designated)
- 5 Charleston Lake Provincial Park (trails to be designated)
- 6 Limerick Forest (55 miles)
- 7 Lanark Forest (50 miles)
-  Frontenac Provincial Park

Fig. 26

Scale in miles



Orientation



b) Motorboating (from interior lakes controlled by Ministry)

- i) Essentially unnecessary for full enjoyment of the Park. There is no need to move through the Park waters at high speed.
- ii) The dominance which motor boats exert over other surface water uses reduces the capacity of the lakes for such uses as canoeing.
- iii) Motor boating generates noise levels incompatible with hiking and canoe use. Many of the canoe routes will pass through lakes on the Park boundary which have motor boat traffic. Only the Park can provide a quiet oasis.
- iv) There are many lakes available near the Park for motor boating.

c) Hunting

- i) Given the extremely limited habitat for game species, hunting is not expected to be required as a wildlife management tool in the Park.
- ii) The timing of prime hunting interest in the Fall coincides directly with prime hiking. The conflicts, including the unsubstantiated but commonly felt threat to human safety are too severe to allow simultaneous use by all parties. The seasonal conversion of a dispersed recreation area to a hunting reserve would in this case defy the true capabilities of the Park.

d) Aircraft landings (from interior lakes controlled by Ministry.)

- i) same rationale for exclusion as for ATVs and motorboats.

Exceptions to the above exclusions can be made on the basis of emergency situations and Park management/administration needs. Many of the exclusions concern legitimate aspects of the total outdoor recreation spectrum, involving a large segment of the population. The exclusion of such use from Frontenac Provincial Park, though clearly justified, must be offset by continuing to provide suitable areas in the recreation system which offer the environmental characteristics capable of attracting and sustaining such activities as public hunting and snowmobiling.

4. Central Theme - "Threshold Wilderness"

Each of the concept options is essentially a variation of a central theme which embodies introducing the Park visitor to outstanding natural environment experiences as a prelude to wilderness travel in other Parks. This introduction, or "threshold" experience has two purposes: a) to reveal the extended forms of recreation as an alternative to developed site-centered recreation, and b) to simultaneously instill in the forest user the skills, knowledge, and behaviour necessary to both personal satisfaction and environmental preservation. Although Frontenac Provincial Park does not represent true wilderness, the awareness and skills gained at this Park can then be pursued further in higher-order wilderness experiences in such areas as Killarney, Quetico, and Polar Bear Provincial Parks.

Extended recreation is attracting increasing numbers of people, with interior camping in Algonquin Provincial Park for example, experiencing a 125% increase in the last 5 years.

The 1967 and 1969 Canada Outdoor Recreation Demand Study, along with the 1972 Tourism and Outdoor Recreation Planning Study, indicate that 3,475,000 people participated at least once in hiking or canoeing in 1972. Such participation represents a nearly 300% increase over the previous five years.

However, the rationale of this theme and twofold objective can best be explained by reviewing the growth and problems of interior use inherent in another recreation area 250 miles east of Frontenac Park in New Hampshire.

The trail system in the White Mountain National Forest of New Hampshire is perhaps to the North-eastern U.S. what the canoe routes of Algonquin and Quetico are to Eastern Canada. An outstanding network of over 1000 miles of trails traverse the valleys, forested slopes, and the alpine treeless zones of the Presidential Range. In the late 1950's and early 1960's, recreation use for the W.M.N.F. typically centered on vehicular travel and developed recreation areas.

The typical overnight hiker of that era either made most of his own equipment, or used surplus equipment available from the "Army/Navy Store". His food was usually packaged in heavy tins, his shelter was the G.I. pup tent, and everything was carried in a poorly-balanced haversack or ruck sack. He cooked over gathered wood, and washed his dishes and himself in available streams and springs. A truly free spirit, he avoided developed campground life and camped where he pleased. There were among his peers those who could afford the sophisticated European backpacking equipment of limited availability and high cost. Indeed, studies in western U.S.

National Forests had revealed the typical interior user to be of higher affluence than his campground counterpart, hence his possession of the time and finances necessary to penetrate undeveloped primitive areas on foot, with good equipment.

By the late 1960's the situation in the White Mountain National Forest had produced a curious change in user statistics; not only had backwoods use moved toward the most popular category of use, but it also represented the greatest percentage of increase of any particular use. Recreation specialists and landscape architects, long accustomed to fighting delaying skirmishes with family campers by providing yearly incremental increases in new campsites, were generally elated by the changing pattern of use. To be sure, the demand for family campgrounds was as great as ever, and new campgrounds were usually instantly full upon opening. But the beginnings of a shift by users to backwoods travel meant that a large segment of the visiting public could be accommodated by a trail system which did not require the high capital and operating expenditures inherent in campground development with roads, sanitation and water systems, control staff, and garbage pickups. As we now know the "curious" change of the late 1960's was only the beginning of a phenomenal shift in recreation patterns which has brought us to a present boom in extended-recreation demands. The trend has gone year round, with the Nordic skiing surge replacing for many people their previous devotion to the high cost and long delays of downhill skiing. And what is the typical hiker of today? He is neither the make-do innovator nor the ultra-elitist his predecessor may have been. Rather, he is surrounded by the most incredible array of light-weight backpacking equipment and gadgetry imagineable, from 3 oz. emergency tube tents to 6 oz. full course meals to magical metal matches. This equipment is not only reasonably priced within his means, but is also available to him virtually everywhere he turns, from discount stores to service stations.

Today's hiker is in many ways an earthbound astronaut, able in a seemingly rare and significant opportunity to apply "space age" technology to the exploration and understanding of his natural environment. Unlike his astronaut counterpart, however, who combines technology with years of training before going anywhere near the moon, today's hiker stands at the centre of the wilderness marvelously half-equipped. Given hardware but lacking knowledge, and taken en masse, he is perhaps potentially even more dangerous to himself and his environment than the all-terrain vehicles which are recommended to be excluded from this park. Firstly, he is allowed access to sensitive sites and secondly, the trampled orchid, or rockclimbing accident, or dishwater-fouled spring, occurs quietly and out of sight. Thus today in many primitive areas search and rescue operations require considerable man-hours and equipment; forest fires have increased in both number and difficulty to locate and extinguish; rare flowers have disappeared from meadows; some trail campsites have the appearance of overgrazed woodlots; and litter cleanup has become a fulltime and costly maintenance program.

As a result of such increased pressures on the backwoods environment, new guidelines have been recommended for extended recreation travel, including such points as following:*

*Derived from "Some Guidelines for Back-country Campers", Appalachian Mountain Club, J. B. Nutter, Education Director.

SHELTER

Camp In Designated Areas - The tremendous increase in backcountry campers necessitates controlled use. The woods cannot afford indiscriminate camping.

Carry Complete Shelter - Shelters are often full. It is especially important that groups be prepared to camp at a shelter site outside the shelter. Each group (and individual) should have his own shelter, including necessary poles, stakes ground insulation and cord. Boughs and branches should never be cut for shelter.

Do Not Damage Ground Cover - If a provided shelter is full and a tent or other shelter must be pitched, pick a level site that is clear. Do Not Clear An Area For Shelter And Do Not Trench Around A Tent. If a tent site is well chosen there should be no need for a ditch around it.

FIRE

Always Carry A Portable Stove - There is simply not enough wood left around most shelter sites for all campers to have a wood fire. Stoves are DANGEROUS, and must be used with care, but they are NECESSARY.

Do Not Disturb The Natural Ground Cover - Place stove on rocks or provide your own ground insulation.

Always Carry Out All Refuse - There is no need to burn anything--carry it out!

WATER

Use The Water Supply Only For Drinking - The water supply, spring or stream, should not be used for any kind of washing.

Wash All Pots Away From The Water Supply - Leftover food should be carried out in a garbage bag. (Carry a small screen to filter garbage out of cooking water.) Pots should be washed with soap (not detergent) and soapy water disposed of away from water supply.

Wash All People Away From The Water Supply - Do not rinse soap into drinking water-including a stream.

WASTE

Use Provided Sewerage Facilities - They are provided for a reason. It is especially important that group leaders see that their whole group use the facilities.

Designate One Area For All Use If Sewerage Are Not Provided - Dig a trench with a stick (a shovel is not a necessary camping tool). It need not be any deeper than one foot. Cover the trench when you break camp and scatter ground cover over the trench so that it cannot be found.

Carry Out More Than You Carried In - If all campers carry out extra trash we can keep the backcountry clean. Paper, plastic, cans and garbage should all be carried out. Every individual should have a refuse bag in his pack.

The New Hampshire example will appear extreme here in Canada, with perhaps the closest Ontario example being the litter problems encountered along the Quetico and Algonquin canoe routes. Fortunately we are therefore in a position to look at preventative action in the form of education, rather than to rely on solely remedial measures to maintain the quality of backwoods recreation.

The problem of wilderness use education is not a lack of knowledge to give, rather it is a lack of a program to teach and acquire it. A great deal has already been done in books, school classrooms, television, and day-use conservation areas. And no one can deny that true wilderness travel must always contain a challenge to develop personal skills, environmental understanding, and self-reliance. But there is a minimal level of education required at the beginning of these same outings, which cannot be gained sufficiently from the above sources. The best source would be a laboratory of natural environment conditions providing a variety of training techniques, and structured along the lines of a recreational visit to a Provincial Park.

Frontenac Provincial Park presents a unique opportunity to provide an outdoor learning and skill-development opportunity within easy reach of the major urban centres of south central and eastern Ontario. Although small in size, the Park's relative sense of remoteness, lack of physical development, rugged terrain, and interior lakes represent outstanding natural environment, capable of providing glimpses of essential wilderness conditions. The ruggedness of the terrain is demonstrated by the example of the Rideau trail, carefully scaling in plan at 10 miles within the Park, while in fact providing closer to 20 miles of actual hiking. The emphasis on dispersed recreation

training does not preclude use of the Park by more experienced visitors. The variety of physical, biological and cultural resources; coupled with its southern location will attract visitors at all levels of experience. The pattern of extensive hiking and canoe routes can and should satisfy a variety of user skills.

An important aspect of the "Threshold Wilderness" theme is the provision for limited-facility family camping in addition to remote trail campsites. This feature is important for it frees visitors from being totally reliant on interior camping, and allows more family participation. The Park, while a destination in itself, can therefore be used internally on a day use or short stay basis. The hiker can move from a family campground on the Park fringe into the interior, returning in a day or after one or two nights stay. The campgrounds, while perhaps destinations in themselves, are essentially serving as support facilities for interior Park hikers, as opposed to the Park interior being a secondary side attraction for campers. The inclusion of such support facilities (low-moderate density) provides an essential difference between Frontenac Provincial Park and true Primitive class Parks which demand a more total commitment to pure wilderness travel.

5. Trail Centre

A very important feature common to the central theme is a Trail Centre from which hiking trails and canoe routes emanate. The Trail Centre, through promotion by the Ministry, can emphasize the extensive recreation character of Frontenac Provincial Park, and will provide controlled vehicular access to one central area from which approximately 85 miles of hiking trails, canoe routes and Nordic ski tours originate. A variety of functions is anticipated for the Trail Centre, including administration and visitor services.

C. Concept Evaluation

Since those features common to all concepts have been previously described, this evaluation can limit itself to a brief description of each concept and its advantages and disadvantages. It would be more accurate to describe the following development options as "Variations" of a theme rather than as contrasting concepts.

Variation A - Big Salmon Trail Centre (Figure 27)

This variation utilizes primary vehicular access off Sydenham Road to the west end of Big Salmon Lake, where the existing lodge site is redeveloped as a Trail Centre. The existing Otter Lake Picnic Area is retained or converted to a family campground for hikers, depending upon suitable campground potential being acquired on the entrance road. The Little Clear/Black Lake area would exclude any vehicular access (except Park Staff).

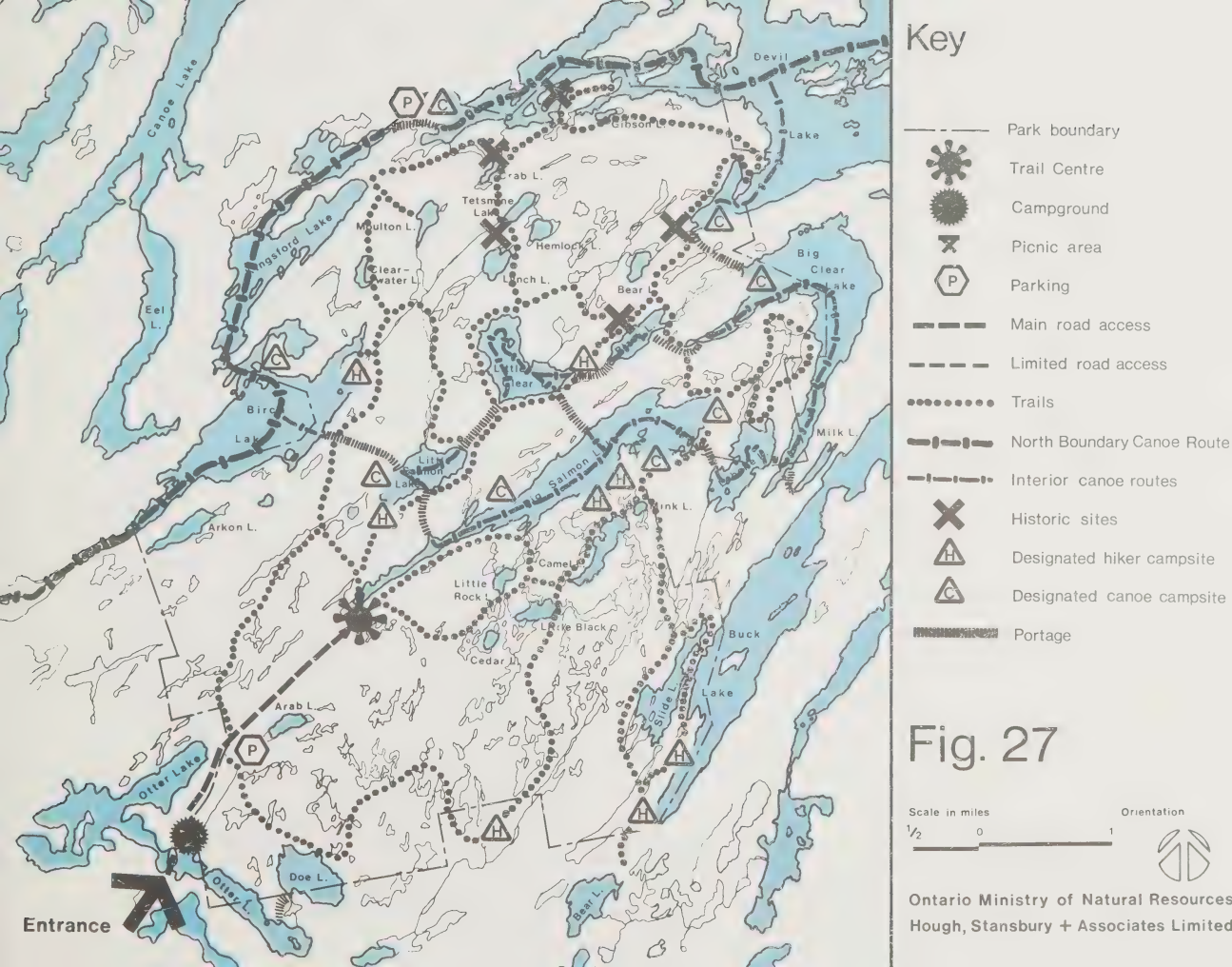
Primary Advantages of Variation A

- a) Trail Centre is in best location to serve as hub of all interior hiking trails and canoe routes.
- b) Trail Centre, being on Big Salmon Lake, provides best opportunity for Ministry of Natural Resources policing and maintenance access to majority of trails.
- c) Canoe routes can start with largest interior lake for quick dispersal.
- d) Trail Centre site does not encroach upon any natural or cultural sensitive sites.

- e) Access road to Trail Centre exists now, and offers greatest Ministry of Natural Resources control of adjacent land use.
- f) Trail Centre is in vicinity of Rideau Trail.
- g) Existing Otter Lake Picnic Area provides additional amenity and "support".

Primary Disadvantages of Variation A

- a) Trail Centre in remote location from potential Historic Loop trail, a disadvantage to those less able to take long hikes.
- b) The south arm of Otter Lake area cannot provide the same quality of camping near the Trail Centre as can occur at Kingsford Lake.
- c) The Trail Centre would be remote from the north boundary canoe route.
- d) Trail Centre, being in more rugged area of the Park, would not be ideally suited to Nordic skiing trails. Use of frozen Big Salmon Lake would be necessary.



Variation B - Black Lake Trail Centre (Figure 28)

This variation utilizes the existing road on the east side of the Park along Big Clear Lake for primary vehicular access to a Trail Centre near Black Lake. A family campground for hikers would be provided near the trail centre. The Otter Lake Picnic Area and parking area for the Rideau Trail becomes the limit of public vehicular travel in that sector of the Park. The Lodge is phased out, although an optional feature would be to maintain it as a Ministry of Natural Resources trail maintenance centre.

Primary Advantages of Variation B

- a) Close proximity to historic and natural features would strengthen interpretation program in terms of availability to most people.
- b) Best area for originating Nordic ski trails, due to most gentle terrain in the Park.

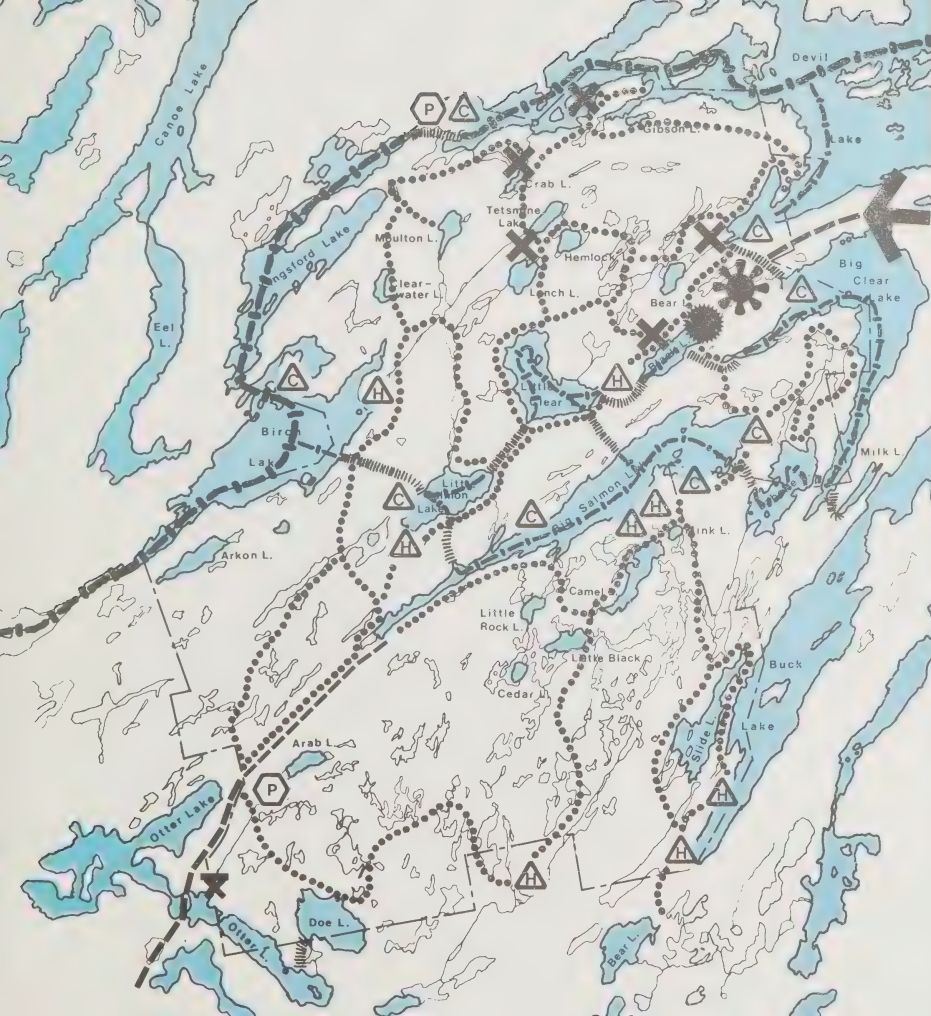
Primary Disadvantages of Variation B

- a) Advantageous proximity to historic and natural areas would threaten "sense of discovery", aesthetics, and features themselves.
- b) Canoe routes would have to start with a portage, rather than immediate access to water.
- c) Permits vehicular penetration almost to heart of Park, in near violation of Park objectives.
- d) Access road to Park Boundary lined with private cottages, and subject to

uncontrolled land use.

- e) Long term lease on Little Clear Lake encumbers short term implementation of this variation.





Key

- Park boundary
- Trail Centre
- Campground
- Picnic area
- Parking
- Main road access
- Limited road access
- Trails
- North Boundary Canoe Route
- Interior canoe routes
- Historic sites
- Designated hiker campsite
- Designated canoe campsite
- Portage

Fig. 28

Scale in miles



Orientation



Ontario Ministry of Natural Resources
Hough, Stansbury + Associates Limited

Variation C - Kingsford Lake Trail Centre(Figure 29)

This variation combines the Trail Centre with a family campground on Kingsford Lake. The existing lodge on Big Salmon Lake, and the Otter Lake Picnic area, can be handled the same as in Variation B. The prevention of vehicular access to the Little Clear/Black Lake area is the same as in Variation A.

Primary Advantages of Variation C

- a) The Trail Centre can provide an interpretive program for most Park visitors in one location, including those passing by on the north boundary canoe route.
- b) This variation provides the minimum road penetration into the Park.
- c) The Trail Centre is closer to key historic and certain natural features than Variation A, without virtual encroachment as in Variation B.
- d) Hikers can enjoy excellent potential family camping in the Park at the Trail Centre location.

Primary Disadvantages of Variation C

- a) The entire variation is dependent upon negotiation of a right-of-way across Kingsford Lake dam.
- b) The Trail Centre is at the edge rather than the hub of the hiking trail system, causing heavier use on local trails in order for hikers to get into the system.
- c) Canoe trippers must start on motor boating lakes, and portage into the smaller, quiet, interior lakes.

- d) The Trail Centre is very remote from the Rideau Trail.
- e) Sharing the same site with the Trail Centre provides the least amount of family camping as support to interior users.





Key

- Park boundary
- Trail Centre
- Campground
- Picnic area
- Parking
- Main road access
- Limited road access
- Trails
- North Boundary Canoe Route
- Interior canoe routes
- Historic Sites
- Designated hiker campsite
- Designated canoe campsite
- Portage

Fig. 29

Scale in miles
 $\frac{1}{2}$ 0 1

Orientation



Variation D - Otter Lake Trail Centre (Figure 30)

This variation locates the Trail Centre within the existing picnic area on Otter Lake, utilizing the existing road access. Portions of the picnicking function are retained to support the Trail Centre, and a family campground is provided within the property opposite the Picnic Area, with camper access to an existing sand beach. The existing road extension to Big Salmon Lake is maintained with only minor improvements as a canoe route access point. No other road or developed sites (other than the interior trail system) are proposed in this Variation.

Primary Advantages of Variation D

- a) requires least new road development and improvement;
- b) requires limited road penetration into Park;
- c) can best serve passersby wanting to learn about the Park without bringing them into Park interior;
- d) accessible to canoe trippers on North Boundary canoe route;
- e) minimizes car traffic between trail centre and campground during day;
- f) best location for administrative control of arrivals and users;
- g) pleasant setting with associated lake and picnic area;
- h) Trail Centre can provide starting point near Rideau Trail;
- i) ease of winter road access and maintenance;

- j) Trail Centre and campground close together, but visually separate.

Primary Disadvantages of Variation D

- a) involves greatest distance between Trail Centre and historic zones;
- b) requires land acquisition of campground (assumed feasible).





Key

- Park boundary
- Trail Centre
- Campground
- Picnic area
- Parking
- Main road access
- Limited road access
- Trails
- North Boundary Canoe Route
- Interior canoe routes
- Historic sites
- Designated hiker campsite
- Designated canoe campsite
- Portage

Fig. 30

Scale in miles



Orientation



Ontario Ministry of Natural Resources
Hough, Stansbury + Associates Limited

PHASE 4: THE MASTER PLAN

A. Development

The development within the Park is based upon Variation D of the alternatives which is considered to be the best scheme for achieving the Park Concept.

The development consists of five distinct but interrelated components:

- A park access system
- A Trail Centre on Otter Lake which serves as a focal point of visitor service programs
- An interior travel route system of trails and canoe routes, with associated trail shelters and designated tent sites
- A family campground on Otter Lake which provides a base of operations for hikers and canoe-trippers, as well as an attractive destination for visitors acquainting themselves with the Park resources and Threshold Wilderness concept.
- Suitable parking areas related to the above developments.

1. Park Access

Visitors approaching the Park from urban areas will tend to pass through either Sydenham or Westport, utilizing the scenic road corridors described previously under Alternative Concepts. Those approaching the Park from Hamilton, Toronto, Peterborough or Kingston will pass through Sydenham on the Sydenham-Fermoy Road (County Road 5A). Those arriving from Ottawa will link with the loop corridor at Westport. There are interesting features which the road corridor can reveal to the traveler approaching the Park.

A single vehicular entrance is proposed for the Park at Pearkes Lake off the Sydenham-Fermoy Road. This access point, and the subsequent entrance road, utilize an existing gravel road which currently provides public access to the Otter Lake Picnic Area, and the Park staff access to Big Salmon Lake (figure 31). This entrance road will require limited improvements to carry the increased traffic generated by new Park development. Such improvements are most necessary for the first 1½ miles which lead from the entrance to the proposed Otter Lake Trail Centre and Campground. The remaining 1½ mile connection to Big Salmon Lake is intended to serve only as an access route for canoe trippers and Park staff, and should be improved only as necessary to provide a safe, maintainable surface. A total of 3 miles of interior road is therefore proposed in this Master Plan. The existing dirt road from the Park boundary north of Big Clear Lake to Little Clear Lake should be closed to all vehicular traffic other than the Lessee on Little Clear Lake, and Park staff. The dirt road connecting the Perth Road with the Park at Slide Lake should terminate at the Park Boundary, and can serve as an access point for Park staff to the Rideau Trail and tent site development in the southeast corner of the Park. The latter two roads are suitable only for light truck and 4 wheel drive vehicles, and should be kept in their present condition to help discourage any significant public use as access points.

A 40 mile regional Canoe route is proposed as a lateral loop westward from the Rideau Canal (see Figure 26). This route, which passes through Devil, Kingsford and Birch Lakes, can provide access to Otter Lake and the Trail Centre. It is proposed that no motor boating traffic be permitted on the south arm of Otter Lake from the entrance road crossing eastward. The few existing cottages on this part of the lake support such a ban, which would be consistent with maintaining a quiet atmosphere at the Trail Centre.



Key

- Park boundary
- Main access road
- Limited access road
- County road

Fig. 31

Scale in miles



Orientation



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2. The Trail Centre

The following functions are planned for the Trail Centre:

a) Park Administration

- i) staff offices
- ii) visitor registration
- iii) communications centre to field staff

b) Visitor Services Program

- i) interior travel route maps and descriptions
- ii) wilderness travel training
- iii) interpretive program for park resources

Outdoor extensions of the Trail Centre programs include the self-guiding Doe Lake Interpretive Trail; conducted interpretive and training hikes; canoe-handling demonstrations on Otter Lake; and orienteering courses (winter and summer).

The Trail Centre is planned to serve visitors arriving by foot from the Otter Lake Campground; by canoe from the Regional Canoe Route through Desert Lake; and by car from the Sydenham-Fermoy road. The latter two groups may be visitors intending to stay in the Park, or passersby who will visit the Trail Centre to learn about the Park, its concept and resources before continuing on their travels.

The Trail Centre is planned as a year round facility, providing a starting point for Nordic skiing, snow-shoeing, ice fishing, and group use by regional schools.

3. The Interior Travel Route System

Given the Threshold Wilderness concept and its emphasis on extended forms of outdoor recreation, the interior travel route system becomes the basic framework of Park use. The Master Plan proposes a network of travel routes for hikers and canoe-trippers which conform to the following criteria:

- Minimize conflicts between the two modes of travel by keeping portages independent of hiking trails to the maximum extent possible.
- Provide access to all physiographic zones of the Park.
- Provide a variety of user options in regard to distance, travel time, degree of difficulty, and resource interest.
- Emphasize loop routes, and avoid unnecessary reliance on returning along the same route.
- Reveal significant natural and cultural features without imposing travel routes on sensitive sites.
- Provide a $\frac{1}{2}$ mile minimum separation between trails.

These travel routes can be shown at the Master Plan scale only in diagrammatic form, linking desirable features and areas. Specific trail locations which carefully respond to site conditions will require actual field reconnaissance to establish final alignments. The travel route system is described as follows:

a) Hiking Trails

The following descriptions of individual trails shown graphically in figure 32 include preliminary names for report reference. A network of approximately 60 miles of hiking trails is recommended to fulfill the established criteria (see figure 33). Total trail mileage is less than the sum of individual routes due to the overlapping use of common trail sections. The Rideau Trail, not named in the chart, becomes a continuous linear route utilizing portions of the Arab Lake, Cedar Lake, and Slide Lake loop trails.



<u>Name of Trail</u>	<u>Hiking Distance In Miles (Includes a Factor of 1½)</u>	<u>Shortest Hiking Distance From Trail Centre (Miles)</u>	<u>Significant Features of Interest</u>	<u>Location of Nearest Camp- Sites</u>
Doe Lake Loop	2.6	0.0	Interpretive Trail	Otter Lake Campground
Arab Lake Loop	9.6	0.7	Arab Gorge Natural Zone	Otter Lake Campground
Cedar Lake Loop	10.2	4.0	Cedar Lake Natural Zone and Scenic views	Near South Park Boundary, and on Big Salmon Lake
Slide Lake Loop	4.5	12.0	Scenic Views and Geology	Between Slide and Buck Lakes
Big Salmon Lake Loop	16.2	0.7	Scenic Views, Rock Cliffs	Three sites on Big Salmon Lake Shore
Arkon Lake Loop	6.6	0.7	Bog complex	Otter Lake Camp- ground and Arkon Lake.
Labelle Lake Loop	3.0	7.5	Labelle Gorge Natural Zone	East end of Big Salmon Lake
Little Salmon Lake Loop	7.5	3.0	Moulton Gorge Natural Zone	East shore of Birch Lake
Little Clear Loop	5.6	6.0	Black Lake Settlement and Moulton Gorge Natural Zone	Southeast Shore of Little Clear Lake
Tetamine Loop	5.6	6.7	Tetts Mine and Connor Daly Mine History Brook Trout Fishing	Kingsford Lake Beach
Hemlock Lake Loop	9.0	7.5	Hardwood Bay Geology and Antoine mining history	Near Hardwood Bay

b) Canoe Routes

Canoe routes interconnect the larger interior lakes from which motor boats are banned, and also link with peripheral lakes to permit more extended trips. An overall system of approximately 25 miles of canoe routes is shown in figure 34. The small size of interior lakes, in combination with frequent portages, promotes canoeing for special reasons other than normal extended canoe travel. These special reasons include the learning experience of canoe handling and portaging; fishing; and access to biological, geological, and historical features otherwise accessible only by hiking. For example, a canoe trip can provide an entirely different travel experience from Otter Lake to the Antoine Mine on Devil Lake.

The interior routes utilize the west end of Big Salmon Lake as a point of departure, with access by car to a launching site on the Lake. Portages of approximately $\frac{1}{2}$ mile each link Big Salmon Lake with Little Salmon, Little Clear, and Labelle Lakes. Little Salmon Lake permits canoe-trippers to take short hiking side trips to Moulton Gorge. Little Clear Lake similarly permits access to the mining and settlement history inherent in the North portion of the Park. Labelle Lake provides access to Labelle Gorge, and leads out of the Park into Big Clear Lake. Portages can also be taken from Little Clear Lake to Black Lake to Big Clear, or from Little Clear Lake directly to Devil Lake. A further portage is possible from Little Salmon Lake to Birch Lake. The Labelle Lake route, however, provides the shortest portage from the interior lakes to the external canoe route. The external route will likely be very popular, for it permits a camper to launch at Big Salmon Lake, and travel through Labelle, Big Clear, Devil, Kingsford, Birch, and Desert

Lakes before returning to the Trail Centre via Otter Lake. Such a route provides a maximum of water travel (at least 17 miles) and a minimum of portaging (2 miles). This route will allow visits to Labelle Gorge, Hardwood Bay and Antoine Mine among many other possibilities.

c) Riding Trails

The Master Plan anticipates the eastward extension of the Great Pine Ridge 200 mile equestrian trail which currently links Campbellville with Frankford. Such an extension is envisaged by the Ontario Trail Riders Association to connect with the Rideau Canal corridor and move northward to Ottawa. Because of the Provincial scale of this trail, efforts should be directed toward finding a suitable route through the Park as the eastward extension is being planned. The most likely route would be north of Otter, Big Salmon and Big Clear Lakes, as the southern part of the Park is too rugged for equestrian use.

d) Winter Trails

A network of trails for Nordic skiing and snowshoeing originating from the Trail Centre will enhance the year round application of the Threshold Wilderness concept. These routes can utilize portions of summer hiking trails, as well as broader travel areas within which specific trails are not required. An extension of the Trail Centre educational services during winter will promote the development of the technique and skills which make these forms of winter travel so increasingly popular.



Key

- Park boundary
- — — North Boundary Canoe Route
- - - Interior canoe routes
- ||||| Portage

Fig. 34

Scale in miles
 $\frac{1}{2}$ 0 1

Orientation



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e) Interior Camping

Extended use of both hiking trails and canoe routes will involve overnight trips, and the Master Plan proposes a system of designated trail shelters and tent sites (figure 35). Each site could consist of 1 open front trail shelter with a capacity of 4 people, 4 nearby tent sites and provisions for sanitation (see "Park Management"). These designated sites occur in 10 locations, spaced approximately 6-7 miles apart. Individual locations, where possible, occur near small sand beaches; good forest cover, and other desirable site conditions. Figure 36 indicates a typical arrangement of a designated interior campsite.

4. Otter Lake Campground

Approximately 100-120 family campsites are proposed on the north arm of Otter Lake. This location provides easy walking access to the Trail Centre, thus minimizing daily vehicular traffic between the two points. The terrain is such that the Campground can be designed to be unobtrusive from the Trail Centre, due to the slope of land. A sand beach on the lake is suitable for good swimming, and is intended as a camper facility with no day use.

Each family campsite should be separated from the next by a minimum of 100', and from adjacent roads by at least 50'. The campground, designed to attract new users to the Park trail system, is planned to accommodate small travel trailers, tent trailers, and tents. Regardless of camping shelter used, each site should provide privacy and a maximum degree of natural environment conditions. The Master Plan does not present the campground in detail, and actual implementation will require

carefully prepared site plans and design details to ensure that this most intensive development fully conforms to the Natural Environment classification established for the Park. However, it must be emphasized that the campground is not intended to provide a backcountry experience. That experience is the function of the interior travel route system, and the campground must provide the support facilities necessary to attract and sustain those recreationists not fully committed to interior travel and camping. For most visitors, the Campground and Trail Centre will be the "Threshold" to entirely new kinds of recreation experiences. Figures 37 and 38 indicate desirable design principles for individual family campsites.

5. Parking Areas

In addition to the parking spaces provided within the Otter Lake campground, the following parking facilities are proposed within the Master Plan (figure 39):

- a) Trail Centre parking for 25 cars, serving visitor and staff needs.
- b) Big Salmon Lake parking for 20 cars, serving as a canoe launching site. It is anticipated that this parking area will be kept closed in winter.
- c) Arab Lake trail parking for 30 cars, serving trail users who hike and/or camp in Park interior without need of using Otter Lake Campground.

The overall Master Plan is shown in figure 40.



Key

- Park boundary
 ▲ Designated trail campsite

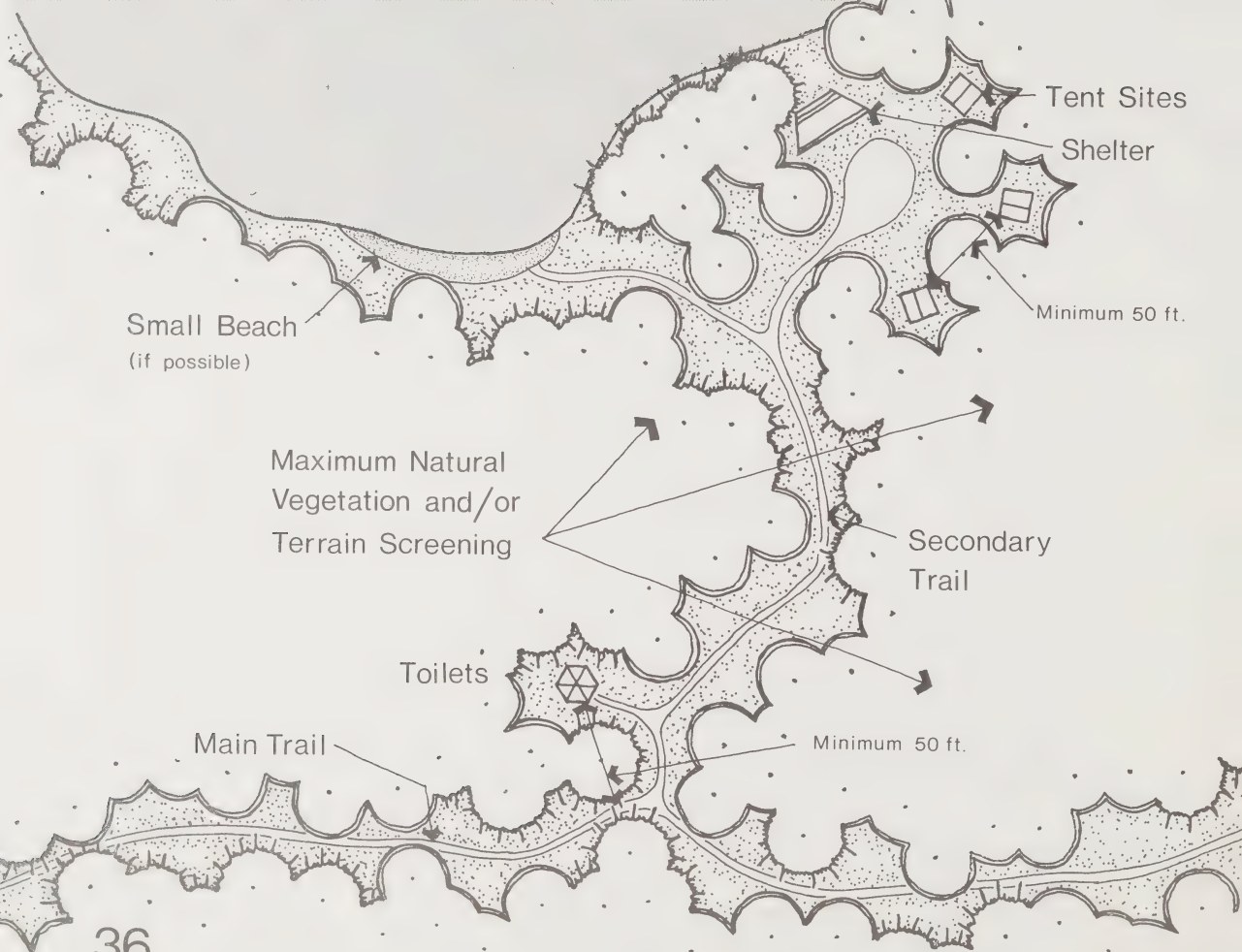
Fig. 35

Scale in miles
 1/2 0 1

Orientation



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Small Beach

(if possible)

Maximum Natural
Vegetation and/or
Terrain Screening

Toilets

Main Trail

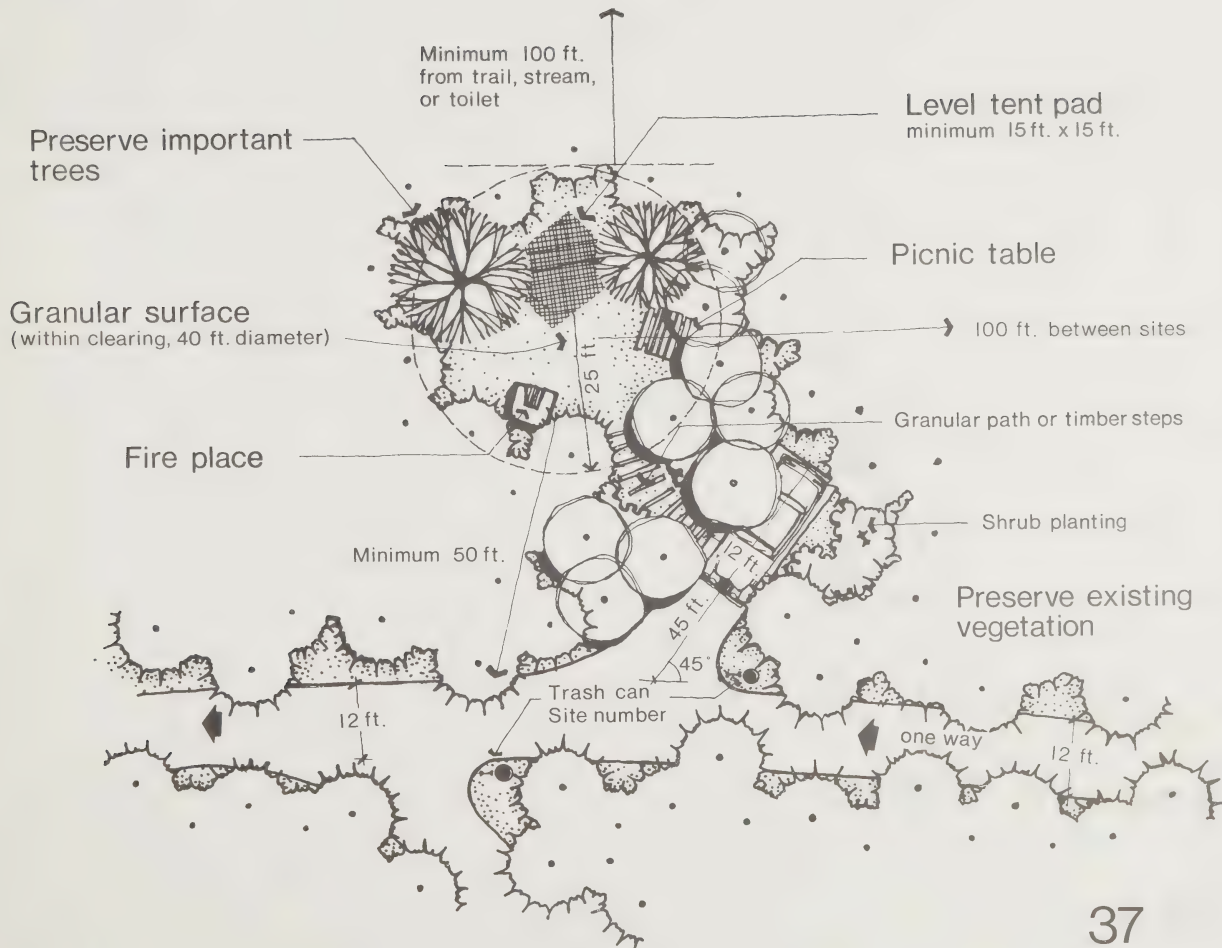
Tent Sites

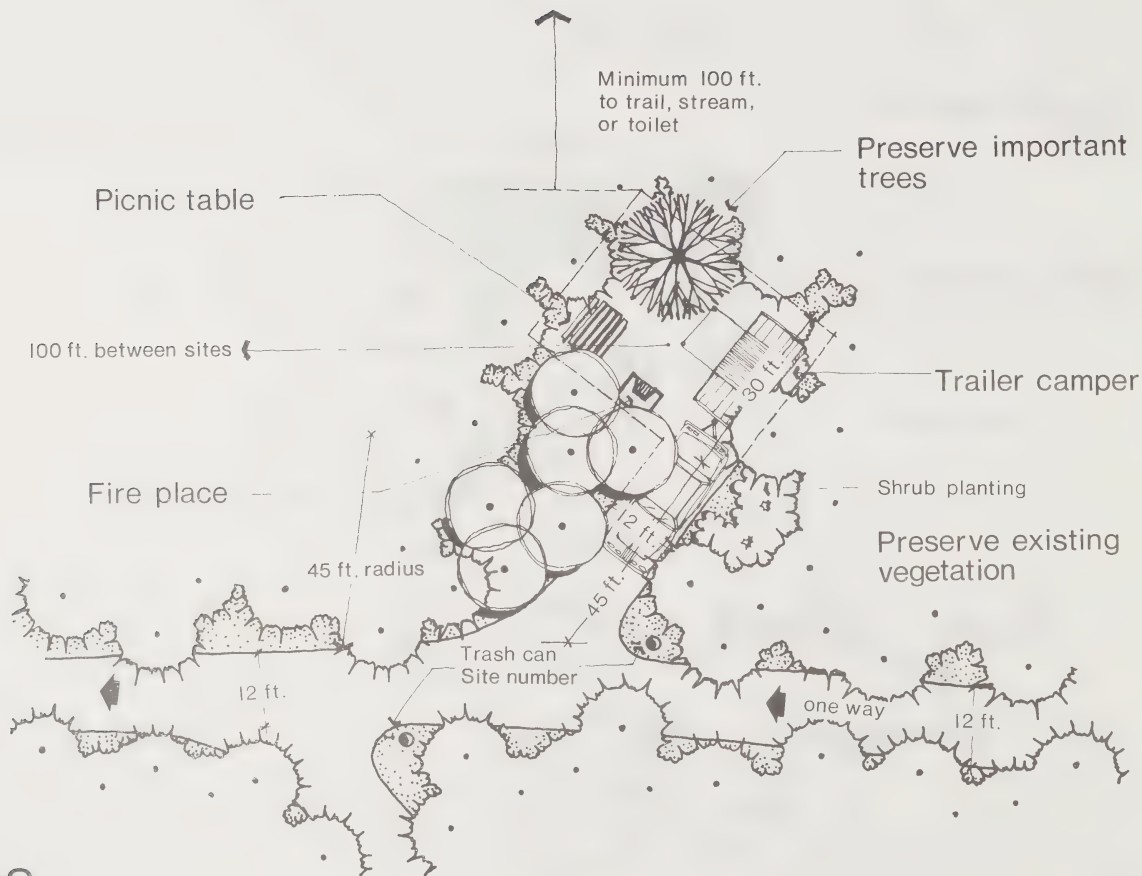
Shelter

Minimum 50 ft.

Secondary
Trail

Minimum 50 ft.





B. Park Architecture

1. 01d

We strongly agree with the author of "A Story of Architecture in Frontenac Park" in regard to his recommendations regarding the place of old buildings in the Park. The following direct quote from the report needs no further refinement.

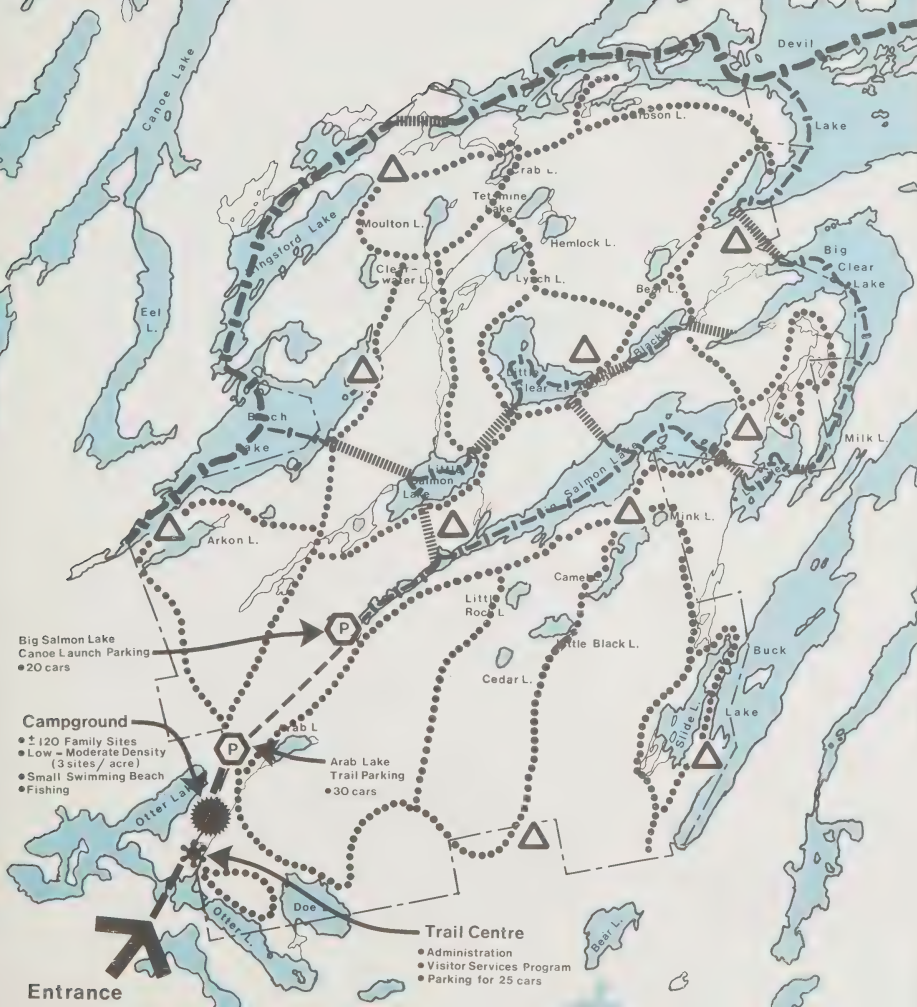
"The choice is this: to leave the buildings as they were found, untouched - except by Time - to survive as memories of the past. Perhaps, a chance wanderer will "discover" for himself as I did, much to my delight and my surprise, the 1847 cabin or the barn. Such an experience, a personal contact with the past, will be rewarding far more than either a visit to a shed marking a historic site or a visit to a fence through which the visitor might peer into Ontario's past.

I cannot escape the feeling that if a certain structure is dismantled and stored to await decisions on its role within the Parks System, it will be forgotten. I may be wrong but the feeling is there nevertheless. It will be forgotten not because of any neglect by those involved in the decision making; rather, it will be forgotten because it will be removed from memory. A typed page and a photograph are easily ignored, they are remote from reality. And so, the building safely stored - too conveniently a first step towards complete erasure - the report written and shelved, time is ripe for the invisible hand of the developer to lay out plans for Frontenac Park.












Architect and historian recede into the background.

Suppose that after the building has been dismantled and that after it has remained in storage for some time, the decision is reached that it is of no value as a representative element in Ontario history. What then? Will the ruins be reconstructed as they were found? I think not! That would involve too much time and money to no apparent purpose other than to satisfy the curiosity of an occasional wanderer through the Park. If the storage shed is to remain indefinitely Frontenac Park will be sprinkled with a dozen ridiculous looking structures. And if the fragments are destroyed and the storage sheds removed, then what? Nothing will be left in the park to remind our traveller that once, a hundred and forty-years ago, someone sought the solitude he himself is seeking now. He will be robbed of a human experience. To say that such an experience will be useless or unnecessary is a moral judgement I will not make; for "every feature of human experience has a claim to reality".

No! Remnants of the past must be left as they are found. I regret now that I unearthed and removed some artifacts (a hinge, a lock, a brick and fragments of two china plates) from the basement remains of two homes located near Big Salmon Lake. I did so under the pretense that they would be used for dating the ruins in which they were found. But they will be returned to their respective burial grounds and scattered - my humble penance for my earlier lack of restraint."



Key

-  Park boundary
-  Trail Centre
-  Campground
-  Parking
-  Main road access
-  Limited road access
-  Trails
-  North Boundary Canoe Route
-  Interior canoe routes
-  Portage
-  Designated trail campsites

Master Plan Fig. 40

Scale in miles



Orientation



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Entrance

Big Salmon Lake
Canoe Launch Parking
• 20 cars

Campground
• 120 Family Sites
• Low - Moderate Density
(3 sites / acre)
• Small Swimming Beach
• Fishing

Arab Lake
Trail Parking
• 30 cars

Trail Centre

- Administration
- Visitor Services Program
- Parking for 25 cars



2. New

Whereas the dispersed recreation development has a limited visual impact, the Trail Centre becomes the primary visual and functional focus of Park development. The architectural quality of this structure is therefore a key determinant of the success of the Threshold Wilderness Concept. The following design guidelines are intended to permit scope while providing a design base consistent with the concept of the Park.

a) Objectives

- To create a sensitive integration of historical life styles and building remnants with a contemporary recreational and educational usefulness.
- To respond to a site which reflects the Park's physical attributes of lake views, open ridges and forested valleys.
- To avoid a visual "exclamation point" in favor of a more subdued relationship to the land.

b) Materials

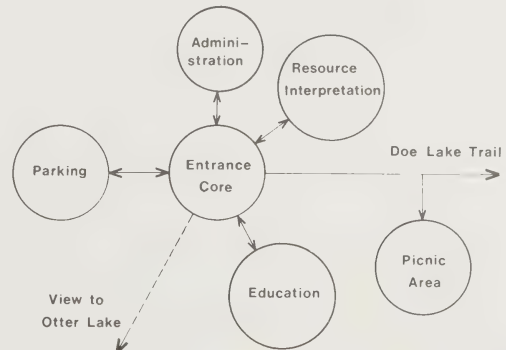
- Natural building materials of wood and/or stone would best accomplish the objectives.
- How such materials are used is, however, more important.

c) Function

- Provide a core entrance area from parking and trails which can provide orientation to the building form and layout.

- Locate administrative functions adjacent to the entrance area for guidance and control of visitors.
- The above two areas can provide the Information aspects of the Visitor Services Program.
- Locate Separate Education and Resource Interpretation Areas adjacent to the core entrance area, but sufficiently isolated to permit non-exchange of noise.
- Provide a separate exit to the outdoors, allowing connection to Doe Lake Trail, the Picnic Area, other interior travel routes, and Trail Centre Parking area.

The adjacent diagram outlines a simple relationship of these functional needs.



C. Visitor Services Program

An interrelated program of information, education, and interpretation is a vital part of the Master Plan for Frontenac Provincial Park, upon which the "Threshold Wilderness" concept depends. Key aspects of the program are described as follows:

1. Information

- a) Park Concept and Development - An informative description of the "Threshold Wilderness" concept, including its aims and objectives, and the inherent development components.
- b) Interior Travel Routes - More specific and detailed information, suitable for field use, which describes the hiking trails, canoe routes, and designated campsites.
- c) User Regulations - An environmental code of behavior governing park users, emphasizing the need to protect park resources and the rights of other visitors.

2. Education

A program which emphasizes and teaches the skills necessary for safe and rewarding experiences in wilderness or backwoods recreation, including:

- a) Equipment needs, selection, and maintenance.
 - b) Canoeing skills, including map reading; loading and handling; portaging, self-rescue and other techniques.
 - c) Hiking skills, including map reading; use of compass; and terrain evaluation and negotiation.
- d) Winter travel skills including Nordic skiing, snowshoeing, winter camping techniques, and ice fishing skills.
 - e) Minimal-impact camping, including litter control; use of stoves and portable shelter; protection of water supply; and other considerations.

The above program can be adopted readily to user needs, ranging from informal demonstrations and talks at the Trail Centre to more formal courses involving interior use, evaluation of participants, and certificates of achievement.

3. Interpretation

Although this program is but one aspect of visitor services, it can and should be a unifying element which reveals the Park resources and creates interest in the more dispersed forms of recreation.

Key aspects of the Interpretive Theme for the Park are as follows:

- a) Emphasis of the overall representative landscape quality of the Park, rather than individual unique features. The theme should generate visitor awareness of the variety of resource interest inherent in the Frontenac Axis.
- b) A three-dimensional resource base of Geology, Biology, and History.
- c) The Park's relationship to the Region, especially in regard to the historical connection to Bedford Mills.
- d) Emphasis on discovery, rather than signs, labels, and exhibits.

- e) Orientation toward the dynamics of Park resources, rather than static features (wetland succession more than individual species).

The above Visitor Services Program originates with the Trail Centre, and can also utilize the Doe Lake Trail as an immediate outdoor extension. The Doe Lake Trail should deal with all three aspects of the program, and avoid a tendency to provide only an interpretation of Park resources. The Trail can demonstrate information (such as trail gradient ratings used in the Park) and connect with education areas (e.g. canoe training on Otter Lake) as well as reveal park resources (e.g. Arab Lake Gorge).



D. User Populations

Projected user populations are based upon five factors as listed below. The assessment and application of these factors are too complex to fully document in this report. However, the following criteria were used in projecting user populations:

1. Desirable density standards

- a) family camping (Otter Lake) = approximately 3 people per campsite, and 3 campsites per acre.
- b) interior camp-sites = designated areas at 6-7 mile intervals.
- c) hiking trails (including winter use) = approximately 3-4 hikers per mile
- d) canoe routes = approximately 2 canoes per mile of route, and 2 people per canoe.

2. Physical Limits of Development

The following physical limits result from balancing available area and desirable densities.

- a) Otter Lake Campground = ± 40 acres x 3 = ± 120 campsites
- b) Interior Camp-sites = 60 miles of trails \div 6 = 10 designated areas
- c) Hiking Trails = 60 miles x 3.5 = ± 210 hikers

- d) Canoe Routes = 25 miles x 2 canoes = 50 canoes x 2 people = 100 people

3. Turnover Rates

These figures relate to the exchange of visitors through a system of fixed capacity at a given time (e.g. a bus which can carry 40 passengers actually carries hundreds of people during a given day).

	Warm Weather	Cool and Cold Weather
a) Otter Lake Camp-ground	= 1	-
b) Interior Travel Routes	= 1	2
c) Trail Centre	= 7	4

4. Occupancy Percentages

These factors represent the degree to which facilities are full at a given time.

	Warm Weather	Cool and Cold Weather
a) Otter Lake Campground	60%	
b) Interior Travel Routes	60%	25%

5. Number of Days Available

a) Warm weather (Late Spring, Summer and Fall)	120
b) Cool weather (Early Spring & Late Fall)	145
c) Cold weather (winter)	100
	365

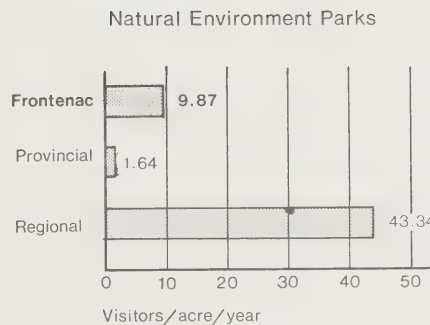
These criteria, when applied on the basis of assumed allocations of total resources, produced the following summary of projected use of the Park.

	Maximum	Average
- Warm weather day use at a given time	600	360
- Warm weather overnight use at a given time	435	261
- *Cool weather day use at a given time	225	56
- *Cold weather day use at a given time	225	56
- Annual warm weather use	136,800	82,080
- Annual cool weather use	91,350	22,837
- Annual cold weather use	63,000	15,750
- Total annual use	291,150	120,677
- Total visitors per acre per year	23.82	9.87

*Overnight use during cool and cold weather, while permitted as a part of the Park concept and management, is not anticipated to be significant enough to include in User Projections.

The average number of visitors per acre per year has been related to the corresponding data for existing use in both Provincial and Regional System of Natural Environment Parks

as previously discussed in Phase One of this report. This comparison is shown below, and indicates that Frontenac Provincial Park can provide a lower density of use and therefore a higher quality of natural environment experience, to the people of Southeastern Ontario.



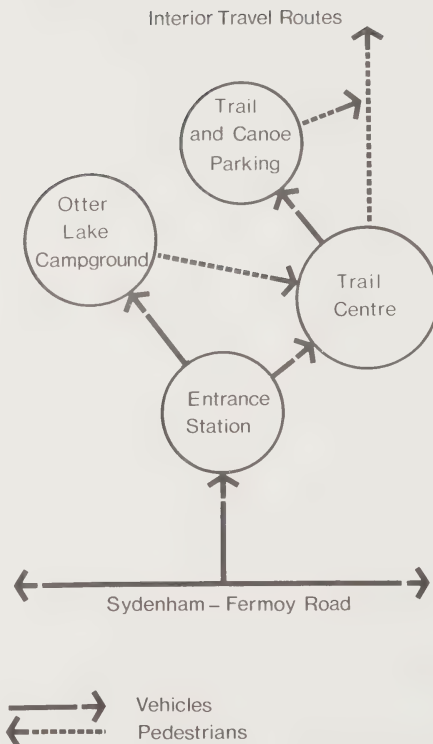
E. User Controls and Fees

The primary control on Park use is focused on an entrance station, which governs vehicular access, and the Trail Centre, which governs interior use (see diagram.) A basic entrance fee can be charged for each vehicle, to cover Trail Centre use, and a separate daily user fee per vehicle is proposed for the campground.

Interior travel route use should be based upon individual permits, purchased at the Trail Centre or any Ministry of Natural Resources office. All interior users must show such a permit upon request by Ministry Staff.

Absolute control over Park entry at all points is of course, impossible, and every effort should be made to promote the Trail Centre as a point of departure for interior use, or at least registration of intended entrance elsewhere. Park Staff patrols for trail maintenance should be combined with supervisory functions, providing a reasonable frequency of inspections.

To help ensure that both Park and private property is respected, a standard boundary marker should be designed, and located at frequent intervals wherever trails or portages pass near the Park limits.



F. Site Services

Three components of Park development will require site services; 1) The Trail Centre 2) Otter Lake Campground, and 3) Designated Interior Campsites. Proposed facilities are outlined below:

DEVELOPMENT	SANITATION SYSTEM	WATER SUPPLY	ELECTRICITY	RATIONALE
Trail Centre and Picnic Site	Water carriage system in form of septic tank and tile bed	A piped pressurized system based upon a drilled well with steel casing. Can also serve picnic sites	Yes	This development has the highest turnover, of visitors, and must also provide adequate services for Park administrative staff.
Otter Lake Campground	Non-water carriage system involving closed vault pit toilets and periodic waste removal	Non-piped water system based upon drilled wells with hand-operated pitcher pumps	No	Natural Environment conditions do not warrant flush toilets, pressurized water supply or trailer hook-ups.
Designated Interior Campsites	Non-water carriage system involving earth pit toilets	Located near lakes for surface water source to be treated by users	No	Pollution must be avoided throughout the Park, while dispersed recreation and use can be based upon natural water sources.

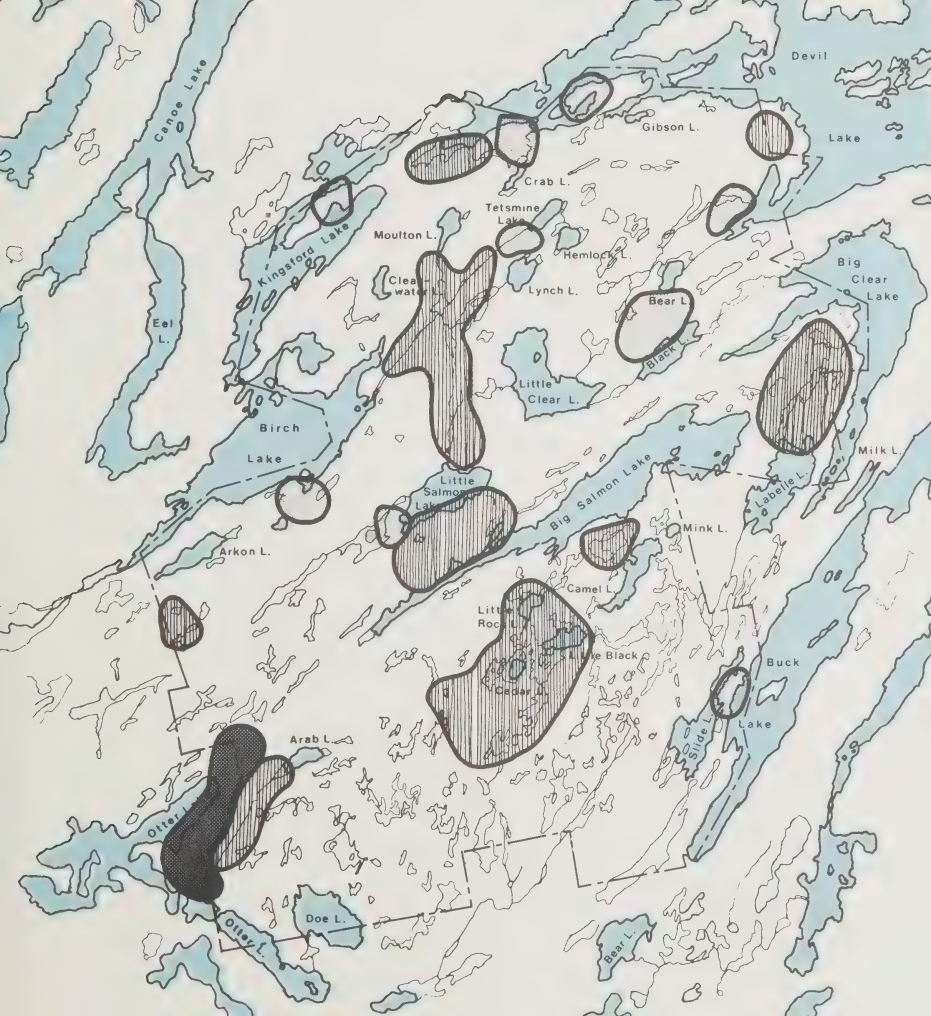
G. Park Zoning

The Parks Act of 1967 provides for internal zoning as well as different classes of Provincial Parks. Subsequent evolution of zoning and systems planning has led to new terminology, which while non-legislative, is used in this Master Plan as it reflects more contemporary usage.

The basic proposed Park zone is a large Hinterland Zone, from which smaller pockets or "islands" of Development, Natural, and Historical Zones have been defined (figure 41). Such zones are intended to differentiate among permissible access modes, recreational uses, and management practices, as outlined on the chart (figure 42).

The suggested zoning is of an interim nature, and should be reviewed and refined as necessary in light of further research discussed in the next section. This is particularly relevant to the Historical Zones, some of which may not be substantiated in terms of Provincial or Regional significance. The approach here has been to place certain areas in special zones until their significance is established or disproven.





Key

- Park boundary
- Historical Zone
- ▨ Natural Zone
- Hinterland Zone
- Development Zone

Fig. 41

Scale in miles



Orientation



Ontario Ministry of Natural Resources
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Zone Type	Primary Access	Secondary Access	Primary Recreation	Secondary Recreation	Primary Management	Secondary Management
Development	Vehicle	Canoe route or trail	Moderately intensive camping	Day-use hiking, swimming, picnicking, and fishing	Selective thinning for safety and aesthetics water quality forest fire, insect, and disease control	Fisheries management on Otter Lake. Non-motor-boat area on Otter Lake (south arm)
Hinterland	Canoe route or trail	Gravel road (for canoe launching only)	Low intensity dispersed recreation e.g. hiking, canoeing, nordic skiing and snow-shoeing, and backwoods camping	Fishing, photography, and environmental studies	As above, plus wildlife management for non-consumptive uses	Lake trout fisheries management on interior lakes. non-motor boating on interior lakes
Natural	Canoe route or trail	None	Low intensity environmental studies and photography	Hiking, Nordic skiing, snow-shoeing, and fishing	Only as required to preserve natural features	As for hinterland
Historical	Canoe route or trail	None	Low intensity historical studies and photography	Hiking, Nordic skiing, snow-shoeing, and fishing	As required to protect historical features	As for hinterland, except Brook Trout fisheries management for put and take Wildlife management for non-consumptive uses

H. Future Research

The following research needs or opportunities have been identified during the preparation of this Master Plan, and are divided into pre-development and post-development categories.

1. Pre-Development Research

Before development proceeds, further studies should be made to locate and evaluate any sensitive features which have been missed entirely, or only partially studied to date. Such studies can concentrate on the proposed development areas and include the following:

- a) Archaeology - the use of the Park lands and waterways by Indians has been indicated in the Historical reports, but has not been thoroughly researched in the field.
- b) History - the careful assessment of specific historical features to determine the degree of non-visual significance exhibited in the Park is clearly required.
- c) Botany - Ian Macdonald has emphasized in his report that certain areas of the Park require further study.
- d) Wildlife - only limited observations have been made to date, and further studies should be made. Knowledge of small mammals and non-game species are especially deserving of further attention.

2. Post-Development Research

Frontenac Provincial Park offers an excellent opportunity to monitor changes caused or generated by development, in regard to the

environmental impact of outdoor recreation. A program of recreational research should be pursued which would provide useful data on camping and hiking impact on soil, drainage, vegetation, wildlife and other aspects of environmental change. Such research should include a careful selection and inventory of study areas along travel routes to provide a datum of existing conditions prior to recreational traffic.



I. Development Staging and Costs

1. The development of Frontenac Provincial Park must be phased over a period of time in order to permit a reasonable sequence of construction and the necessary funding. The following sequence is recommended in order to:

- provide, at any point in the development sufficient facilities to attract and sustain recreational use.
- ensure that primary facilities are made available before less critical development proceeds.
- to create individual phases of reasonably equivalent development costs.

Phase 1

a) Entrance Road and Parking

- i) Entrance Road and Parking Areas at Trail Centre

b) Trail Centre

- i) Basic structure of Park Administration functions
- ii) Sewage, water supply, and electrical services
- iii) Picnic sites

c) Otter Lake Campground

- i) One way loop road

- ii) Sewage and water supply services.

d) Interior Travel Routes

- i) Doe, Arkon, and Labelle Lake loop trails.
- ii) Realign Rideau Trail
- iii) Designated interior campsites at Kingsford, Arkon, Labelle and Mink Lakes (total 4 shelters 16 tent sites and 4 pit toilets).

Phase 2

a) Entrance Station

b) Trail Centre

- i) Additional structure for Resource Interpretation functions

c) Otter Lake Campground

- i) Develop 60 family campsites
- ii) Beach improvements and internal trails

d) Interior Travel Route System

- i) Little Salmon, Big Salmon, and Little Clear Loop Trails.
- ii) Designated interior campsites at Little Salmon, Little Clear, and Birch Lakes.

Phase 3

- a) Trail Centre
 - i) Additional structure for Educational functions
- b) Otter Lake Campground
 - i) Develop remaining 60 family campsites
- c) Interior Travel Route System
 - i) Remainder of trails, portages, and designated campsites.

2. A total cost of \$751,000 is estimated for all Park development, including allowances for inflation and professional fees. Each Phase is costed as follows:

Phase 1

a) Development	\$ 210,000
b) Inflation (10%)	21,000
c) Fees (10%)	21,000
	<u>\$ 252,000</u>

Phase 2

a) Development	\$ 190,000
b) Inflation (20%)	38,000
c) Fees (10%)	19,000
	<u>\$ 247,000</u>

Phase 3

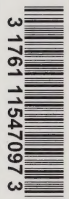
a) Development	\$ 180,000
b) Inflation (30%)	54,000
c) Fees (10%)	18,000
	<u>\$ 252,000</u>

TOTAL \$ 751,000



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